

ARCHITECTURAL RECORD

12 December 1961

Building Types Study: Hospitals

Space-Framed Administrative Center by SOM

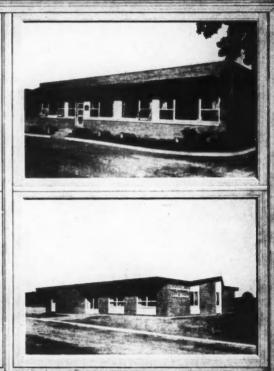
A Church for the Deaf by Rapson

Semi-Annual Index

Full Contents on Pages 4 & 5

4-WAY Qualitybilt WINDOWS

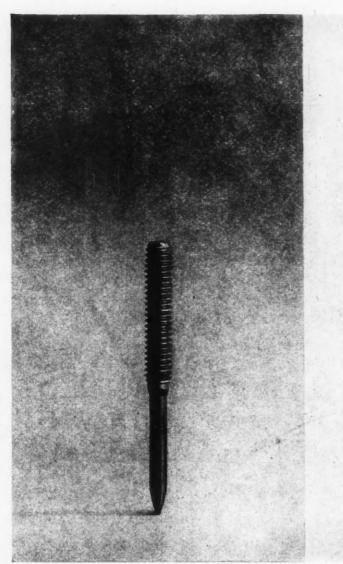


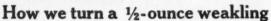


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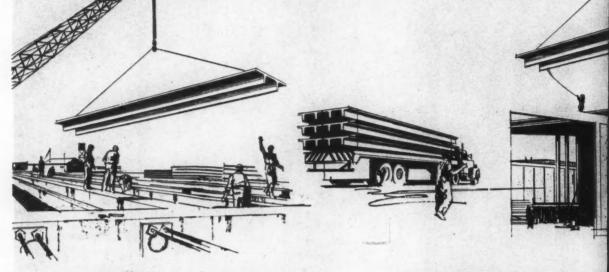
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Architectural Engineering

INTEGRATING MECHANICAL SYSTEMS 148

A Design Approach

by Gershon Meckler

Describes a radiant system for removing heat from lights and procedure for flexible design of mechanical systems

MODEL TESTS PREDICT SPACE FRAME BEHAVIOR 152

by Kenneth C. Naslund

Test model of Upjohn gave design stresses, checked out by a full-sized prototype

TIME-SAVER STANDARDS 155

Floor Framing Systems

by John Mascioni

BUILDING COMPONENTS 161

Sound Systems

by Robert B. Newman & William J. Cavanaugh
Principal types of loudspeaker arrangements are discussed

PRODUCTS REPORTS 163

OFFICE LITERATURE 164

Prince of Peace Latheren Church for the peaalt Paul, Minneacta, Rolph Rapson, Architec

Advertising Index 270

ANGELY ROYALE AND COLOR OF THE PARTY OF THE

UPAL HOORD (1) Week 20th (6) No. No. 10. 10

ARCHITECTURAL

Record Reports

BEHIND THE RECORD 9 Le Corbusier, Psychiatrist by Emerson Goble

LETTERS 10

BUILDINGS IN THE NEWS 12

CURRENT TRENDS IN CONSTRUCTION 18

A monthly analysis prepared for the RECORD by Edward A. Sprague, Economist, F. W. Dodge Corporation

CONSTRUCTION COST INDEXES 20

MEETINGS AND MISCELLANY 27

A roundup of professional news

REQUIRED READING 42

CALENDAR AND OFFICE NOTES 198

And the contract of

About the second second

Tron Tariot and Transport to the Ben

Authors and Articles

BANDOM, PETER Tomas British shoreh Datum An Agen Agent S to Bandom St. 118

MINORIANA CONTROL The profes Manager of the land

NASCOND RESERVED OF THIRD THE Profes Stone Stone

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Features

SPACE-FRAMED ADMINISTRATIVE CENTER 101 SOM's skillful blend of structural expression, fine detail and notable landscaping results in distinguished architecture for The Upjohn Company

A CHURCH FOR THE DEAF 111 An exceptionally nice, low budget church by Ralph Rapson

RECENT BRITISH CHURCH DESIGN: AN AGREEMENT TO BE RADICAL 115

Peter Hammond, leading British critic of church architecture, singles out recent English churches for praise or blame in terms of adaptation to advanced liturgical thought

A TOWN HOUSE ON A SPECTACULAR SITE 123

Anshen & Allen build a multi-level house to exploit the views of San Francisco

RECORD

Building Types Study 301: Hospitals

INTRODUCTION 127 Hospitals are being built in record numbers. Hospital architects and engineers continue to innovate, improve, and establish new design trends. Examples of some of the more important trends:

SPECIAL CARE UNITS 128 El Camino Hospital

IMPROVED PATIENT ROOM PLANNING 134 Roseville District Hospital

DEVELOPMENT OF SERVICE CORES 136 French Hospital

PATIENT CARE ON A SINGLE LEVEL 138 Highland Hospital

SIMPLIFICATION OF PLAN 141 St. Frances Xavier Cabrini Hospital

RESEARCH AND TEACHING IN A GENERAL HOSPITAL 144 Downstate Medical Center

Coming in the Record

ARCHITECTS DESIGN FOR URBAN LIVING

Next month's Building Types Study on Apartments will focus attention on some of the creative contributions architects are making to the design of habitation for city dwellers, and especially principles and practices relating to the successful combination of high- and low-rise units and the effective human use of outdoor space. An article by William J. Conklin, A.I.A., whose firm has had considerable experience with large-scale urban redevelopment projects, will be followed by notable examples of recent work of several architects in this field.

DESIGN FOR FALLOUT PROTECTION

With the Administration urging on the public the necessity of fallout protection, and funds already appropriated for a nationwide survey by architects and engineers of the shelter possibilities of existing buildings, the subject of fallout shelters has suddenly become a hot topic. A six-page article will provide a summary of the latest technical data available for architects and engineers on shelter design.

TEACHING SCIENCE TO ARCHITECTS

The problem of relating developments in building technology to the teaching of architecture has been met at the University of Sydney by the establishment of an "architectural science laboratory" where students perform some 40 experiments on structures, building materials, lighting, acoustics, etc., during a five-year course in architecture. Professor Henry J. Cowan, head of the Department of Architectural Science at Sydney, describes the objectives and methods of the laboratory in an illustrated article in next month's issue.

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SUBSCRIPTIONS: Available only by paid subscription. Publisher reserves the right to refuse non-qualified subscriptions. Subscriptions to Architectural Record solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders forwarded to Circulation manager, Architectural Record, 119 West 40th Street, New York 18, N. Y. Subscription prices: U. S., U. S. Possessions and Canada: \$5.50 per year; other Western Hemisphere countries, to those who by title are architects and engineers, \$9.00 per year, single copy price except Mid-May 1961 issue \$2.00; Mid-May 1961 issue \$2.96. Beyond Western Hemisphere, to those who by title are architects and engineers, \$9.00 per year for 12 monthly issues not including Mid-May 1961 issue. Subscriptions from all others outside U. S., U. S. Possessions and Canada for 12 monthly issues, not including Mid-May issue, \$24.00 per year.

CHANGE OF ADDRESS: Subscribers are requested to furnish promptly both old and new address, sending, if possible, stendil impression from magazine wrapper; new postal zone number, if any, should be included. Allow one month for change.

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Five concrete steps to urban renewal

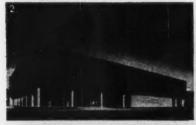
New Orleans has a new heart these days...

A new Civic Center, replacing seven square blocks of slum area. Its five superb buildings create a new focal point for civic activities—and for future downtown development.

Extensive use of concrete in all five structures testifies to concrete's adaptability and its many benefits. Fire safety and structural strength, of course. Lightness—or impressive solidity. Beauty as well as enduring utility. All within a framework of economy.

New Orleans' new Civic Center is an impressive guidepost for urban renewal anywhere. The cement? Lone Star Portland throughout.

1—City Hall. 2—Main Library. 3—State Supreme Court. 4—Civil Courts Building. 5—State Building.











LONE STAR CEMENT CORPORATION, NEW YORK 17, N. Y.

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Le Corbusier, Psychiatrist

In announcing the beginning of construction of the Visual Arts Center, by Le Corbusier, Harvard University has released a short statement by the master which might be said to contain a prescription for curing the ills of the modern mechanized world.

The Center, scheduled to be opened in the fall of 1962, will house, in open flexible space, a number of design workshops "where undergraduates and advanced students will work in a variety of media and materials, and where they will experiment with various aspects of line, form, colors, texture, light and communication." The project recalled to Le Corbusier his own student days and a sort of principle which has remained with him. He wrote to Harvard, in his native French:

"Between 1902 and 1917 Le Corbusier was, in his native country, closely involved in the birth and organization of a special educational section for architectural evolution. Thanks to an exceptional teacher, young and full of initiative (L'Eplattenier), an educational center limited to twenty students, men and women, existed during fifteen years exciting the interest and the hostility of people. In one single place was taught drawing or color, volume, modelling, etc. . . ., construction (furniture, etc.), jewellery, embroidery, etc., etc. . . Le Corbusier began with a burin in his hand and the goldsmith's hammer and chisel, realizing, though

very young, excellent works. He made his first house when he was seventeen and a half without ever having studied architecture. This house, subjected to the influence of that time and of his teacher L'Eplattenier, gave an opening to architectural decorations: 'scraffiti', mural painting, furniture, wrought iron, embossing, etc. . . During the following years this school undertook building works (decorative, of course, since it was the fashion at that time): metal, stone, mosaic, stained-glass windows (concertroom, church, fragment of a public edifice, etc. . .). One day everything collapsed before the rivalry and the hatred which had roused the Old School against this New Section. . . . the manifestation of individualities, the divergencies, finally overcame the enthusiasm.

"And the whole concern collapsed.
"From this first experience Le
Corbusier has kept the instinct of
the prophetic, indispensable, practical and beneficent relations between
the hand and the head. The rupture
of this collaboration of the hand and
the head brought by mechanism
and bureaucracy has fomented little
by little a monstrous society which
would be on the decline if no reaction interfered.

"Harvard University's initiative has therefore found in Le Corbusier a ground which is naturally favorable to the implantation of the ideas which constitute the present programme of this University."

—Emerson Goble

CONTROVERSIES ON BUILDING TECHNOLOGY

Technology of Architecture: Do Schools Reject it?

Your leader (July A.R.) was timely but, alas, few of the leading architects or university professors will stir out of their comfortable chairs to follow you. I'll bet if you mentioned "scientific building research" to the majority of the heads of architectural schools they would cringe as though you had called them a dirty word. You say that "true research in Universities hasn't even come up to the batter's box": how shamefully true! Why? Because they are primarily concerned with teaching skills and the programs offered in most of the schools of "architecture" are twenty or even thirty years behind the times.

In the past four years I have contacted practically every architectural school in the U.S., trying to arouse some interest in independent research programs for (1) color and light: (2) sound and acoustics: (3) standards of fireproofing and waterproofing. Not one of them is even vaguely interested. I find many socalled architectural teachers willing to TALK research providing it is in terms of FORM or DESIGN, but none ready to talk seriously about technical building problems. Small wonder that fledging architects leave school with no more mental equipment than the architect of 30 years ago. In fact, were it not for research conducted by industry, the activities of the B.R.C., and for the examples given by architects of other countries, the American architect would be in worse shape than he is. Do you wonder that European or Canadian architects may be ahead? . . .

Truth is that many teachers are completely out of touch with the grubby business of BUILDING and, on the other hand, too many architects would be lost without Sweets Catalog. Now, were YOU serious—or were you just filling up space? If you were serious, I suggest you repeat the theme and challenge the architectural schools to explain why they are so afraid of practical building and experimental technology that they appear to be trying to divorce architecture from building problems!

Herbert D. White Associate Professor of Architectural Technology Southern Illinois University

Building-oriented Engineers: Do Architects Welcome Them?

Mr. Goble's comments ("Recognition for Engineers") in the September issue of ARCHITECTURAL RECORD are extremely refreshing, particularly when found in a leading architectural publication. One can only hope that the message will not go unheeded among many of the architectural readers.

While I'm inclined to agree with Mr. Goble that bloodshed is probably not imminent, I've witnessed several conflicts of the type described by Mr. Gamble, where bloodshed would have seemed a milder alternate solution.

I have observed the bartering of architectural "esthetics" and engineering "practicality" with respect to specific problems, and all too often I've seen a decision by the esthetician which annihilates the possibility of a reasonable engineering solution.

Many architectural designers are so imbibed with the idea that an engineer cannot be "building oriented" that they fail to recognize the many who are. Quite often the "building oriented" engineer, once recognized, strikes a note of terror in a number of architectural minds, and the apparent recourse is the well known esthetic veil.

Now after due consideration, I'm convinced that intensive probing of the matter on the pages of the RECORD would be a healthy situation and would be a real service to the readers.

William L. Barnes
Professional Engineer (A.E.)
Grand Junction, Colorado

"Architectural Engineering": Practitioners Want Hearing

The article in the August Architectural Record "Technology with Circumspection" by you is most interesting and, I think, most timely.

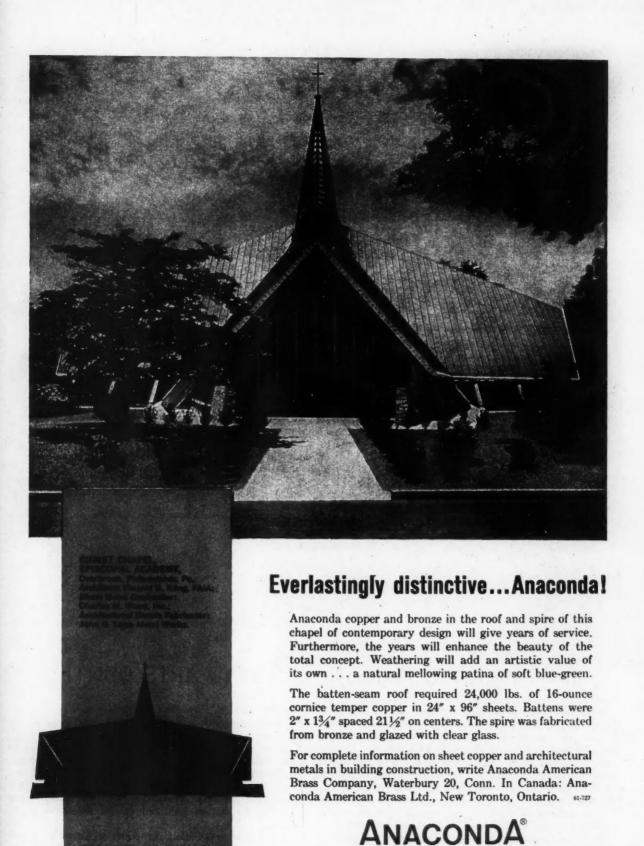
As an architectural engineer (a graduate in architectural engineering at Pennsylvania State University in 1931, a registered architect since 1939, a professional engineer since 1941 and in practice for myself and in partnership since 1940) I have been fighting for over ten years to have my alma mater maintain a balanced architectural engineering course. By this I mean one in which

the graduate, as his wishes and talents decree, can become a registered architect or a registered engineer or, as in my case, both.

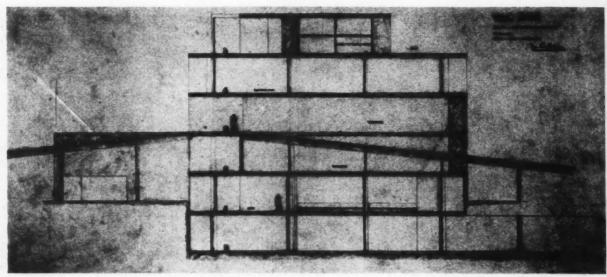
To support me in this project I have been in touch with a number of other graduate architectural engineers. Some are practicing actively only in architecture, some in engineering and others in the combined field. Our major rallying point is that no matter what our present activities, we all feel that the well balanced architecture-engineering curriculum was a very fine education. The architects feel the extra engineering training enhances their shilities to create new and better architecture. Those doing engineering believe you cannot create new and better engineering for buildings without a thorough understanding of the problems of architecture. In the combined field. I can say from my own experiences, it is most gratifying to see a building take shape when you get intimately into all the phases, stages and coordinations as a building grows from the first concept to a worthy structure.

At the present time our group is aware of the activities of many men in our profession who have primarily an architectural background, and as you point out, many in the teaching profession as well, who are doing everything possible to eliminate the A.E. courses, or at least change them so that architectural design will play so minor a role that the student cannot even become a second rate architectural draftsman, let alone a designer. The words of Charles W. Moore in your article express our opinion of this opposition as being due to "discomfort, incomplete understanding, or just plain fear." We are also aware that many of these teachers do everything possible to discourage students from going into or continuing in architectural engineering. It is rather unbelievable, but it appears to be true, that whenever any decisions are to be made pertaining to the architectural engineering curriculum everyone is consulted except the practicing, graduate architectural engineers. We who appreciate the great value of this broad but thorough education are getting fed-up with this attitude.

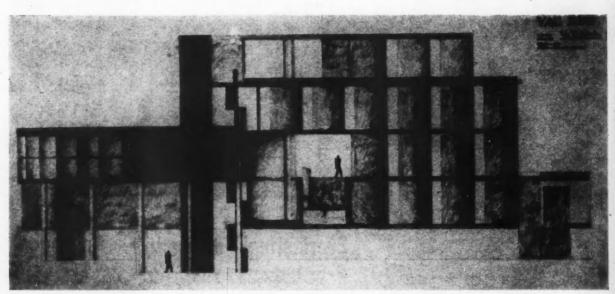
The art in fine architecture grows continued on page 224



Buildings in the News



East-west section showing basement and five floors



Elevation of the east façade

CORBU DESIGNS HARVARD VISUAL ARTS CENTER

The first American building designed by Le Corbusier will be Harvard University's new Visual Arts Center, scheduled to open the fall of 1962. Containing approximately 50,000 sq ft, the five-level building houses, in open flexible space, design workshops where undergraduates and advanced students will work and experiment in a variety of media and structural materials.

The workshops are separated into three areas: two-dimensional and three-dimensional, with workshops located on the second and third floors; and a workshop devoted to "light and communication" (photography, motion picture, sound, etc.), situated underground with studios and a lecture hall seating 180 students. On the fourth floor,

movable walls will provide for seminars, exhibits and experimental projects. A penthouse on the fifth floor will be used by the director of the Center.

The walls use deep sun baffles that change according to the orientation of the façade and control the natural lighting of the interiors. Large rooms open to roof terraces which provide outdoor exhibit spaces. The building is planned for cross ventilation, with air conditioning only in the lecture hall and special basement workshops

The Visual Arts Center is the gift of Alfred St. Vrain Carpenter and the late Mrs. Carpenter of Medford, Ore., to the program for Harvard College.



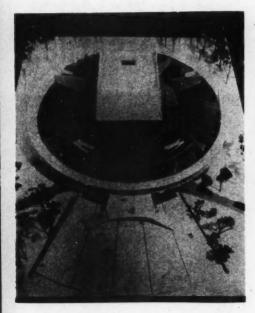


SAARINEN DESIGN FOR LINCOLN CENTER REPERTORY THEATER

The single structure housing the Vivian Beaumont Repertory Theater and the Library-Museum at Lincoln Center was designed by Eero Saarinen Associates with Jo Mielziner as collaborating designer, and Skidmore, Owings and Merrill as associated architects.

The main theater, which seats 1100 persons and contains a stage of 11,000 sq ft, has an air of intimacy which is created through a skillful use of scale. The repeated use of oval curving shapes unifies the stage, main floor, balcony and ceiling.

Aimed at permitting the widest range of possibilities for directing, scenery, light and unconventional freedom for actors, the main theater can have a proscenium stage, an open stage of extreme thrust or a combination of the two. Each of the possible arrangements will have the look of permanence. The mechanism which transforms the theater from one with a proscenium to a thrust stage is essentially a giant lift integrated with a turn-table system below stage.

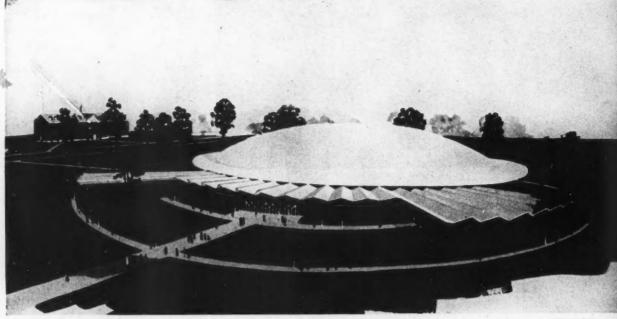


SPINGOLD THEATER
ARTS CENTER
AT BRANDEIS



The Nate and Frances Spingold Theater Arts Center at Brandeis University was designed by Max Abramovitz for teaching and performance. Calling for three basic stages—the three-sided platform, theater in the round and end stage, plus the combination of these, the plan provides facilities for rehearsal and dance studios, classroom, seminar and laboratory teaching and allows for expansion, including a painting and sculpture museum.

The Center will occupy a section of the Campus which is a series of natural bowls and stone out-croppings. The service area, with storage, dressing rooms, mechanical equipment rooms and a truck receiving area, is at ground level. Cars move in under the main level overhangs to the lower foyer entrance. Pedestrian approach will be up a ramped plaza and a pair of monumental stairs. Classrooms, seminars, administrative offices surround performing and working sections. Observation and study balconies are on upper level.



300-ft. concrete dome (reported to be the largest of its type anywhere) is the dominant feature of this new auditorium in Anderson, Ind., for the General Ministerial Assembly of the Church of God. Dome was cast at ground level, contoured over a mound of earth. It was then post-tensioned with twelve 40-wire assemblies supplied by Ryerson—and finally lifted into

place by the Youtz-Slick method. Dimensions: 250 ft. clear span, with 25-ft. cantilevers for a total span of 300 ft.; vertex of dome 68 ft. above floor level. Architect: Johnson, Ritchhart & Associates, Anderson. General contractor: Lewis Construction Co., Anderson. Lifting: Great Lakes Lift-Slab, Chicago; Sky Hook Lift-Slab. Overland Park, Kansas.

How Ryerson post-tensioning service makes prestressing more versatile,

practical and reliable

First post-tensioned apartment building in Chicago area. Thinner slabs, more flexible arrangement of apartments and additional parking area were made possible by use of post-tensioning in the new Grove St. apartment building in Oak Park, III. Use of post-tensioning in this structure brought an award for the architect from the Society of American Registered Architects at their 1961 convention. Builder: James E. Tatooles. Architect: Chester A. Stark, F. A. R. A. Structural consultant: T. Y.. Lin & Associates. Concrete contractor: Lundsberg Company. All are of Chicago.



new design flexibility

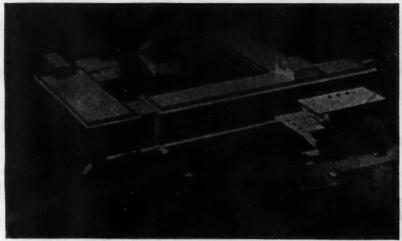
Here are four new buildings—each quite different in design. Yet they all have one important thing in common. They're built of prestressed concrete—post-tensioned by Ryerson.

Using the time-proved BBRV system, Ryerson post-tensioning service provided new design freedom and flexibility permitting wider column spacing and lighter, virtually deflection-free slabs.

Ryerson service covers every operation

This unique Ryerson service covers prestressed concrete application from adaption of the engineers' design through final stages of field erection. It includes force development calculations, quality-controlled tendon and anchorage assembly, equipment for precise stressing (and positive grouting where conduit is used), job-site technical assistance and dependably scheduled deliveries. And the entire service is all wrapped up in a complete, single-price package.

For further information on post-tensioning and other products and services for the construction industry, contact your nearby Ryerson plant.



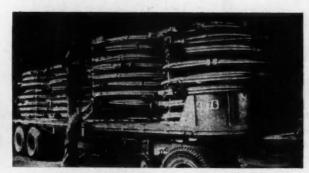
New Nuclear Medicine Building uses post-tensioned lift-slabs. This striking new addition to the campus of a California university is built with continuous, two-way flat slabs 9 in. thick containing a total of 838 Ryerson (BBRV) tendon assemblies—most of them 14-wire units. Column spacing is approximately 25 ft. Architects and engineers: Neptune and Thomas and Associates, Pasadena. General contractor: James I. Barnes Construction Co., Santa Monica. Lifting contractor: Vagtborg Lift-Slab Corp., Los Angeles.



Library Building University of Nevada, Reno—a State of Nevada Planning Board project—is built with 22°6° column spacing, 9° lift-slabs and 4° folded plate roof structure, spanning 90', and cantilevering 27'. Slabs and roof were post-tensioned. Architects: Robert E. Alexander, F.A.I.A. & Associates, and Vhay Associates, Los Angeles and Reno. Structural engineer: Parker, Zehnder & Associates, Los Angeles. Consultant for roof structure: John J. Driskell. General contractor: Stolte, Inc., Oakland, California.



Ryerson Post-Tensioning Assemblies and reinforcing steel in place—ready for pouring of concrete to form precast I-Beam.



Completely assembled tendons—are shipped from Ryerson on specially designed racks ready for easy uncoiling and installation.

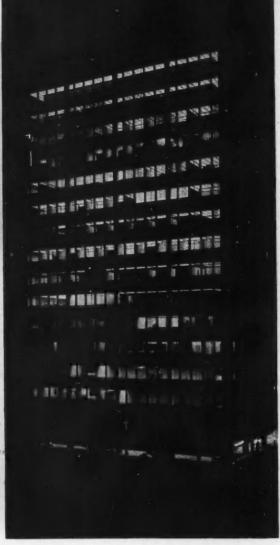
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STANLOCK

a new name for the best in watertight gaskets

You've known the product for a long time. Under the trade name $Inlock^{**}$ it has become the generally recognized leader in its field. Now something new has been added . . . the manufacturing know-how and facilities of The Standard Products Co., world's largest producer of weathertight closures. From this combination of knowledge and skills comes StanLock, new name for the identical product, now made and guaranteed by Standard Products. Complete product and application data are available, as is consultant service. Write for the new StanLock catalog.



STRUCTURAL GASKET DIVISION 2130 W. 110th Street - Cleveland 2, Ohio



*Trade-mark **Registered trade-mark, Inland Manufacturing Division, General Motors Corporation

There's a big difference in Neoprene Structural Gaskets

All neoprene gaskets may *look* alike—but the differences in StanLock represent exclusive and important advantages to the architect, builder, glazier and owner. Here are the reasons:

STANLOCK'S tempered locking strip

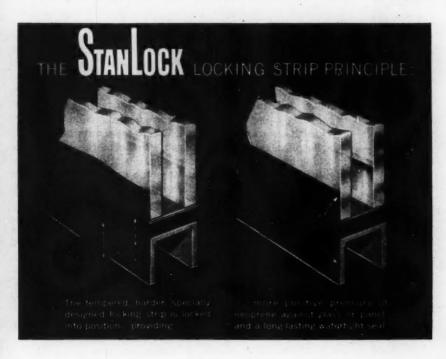
... is a separate, specially designed locking section made of harder, higherdensity neoprene than the body of the gasket. While easily locked into the gasket upon installation, it applies added pressure at the sealing surfaces, providing a more positive seal where it is needed to prevent infiltration of water, air and dust.

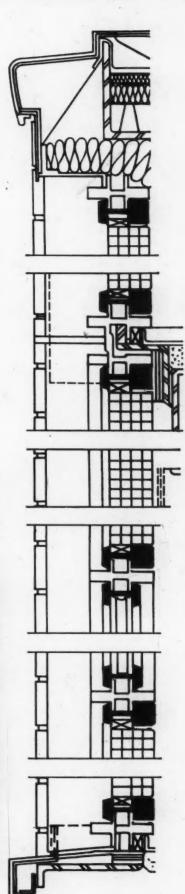
STANLOCKS time-proven neoprene compounds

... combine needed strength and relative resilience with maximum weathering properties. The right neoprene formulas, plus close control in compounding, give StanLock gaskets exceptionally long life. They meet the 25-year "actual" and the 50-year "desired" life requirements for structural seals. Hurricane wind tests have proved the resilience of StanLock to provide sufficient cushion, under severe wind loads or shock wave, to prevent glass breakage.

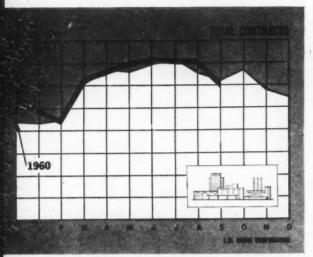
STANLOCKS versatility permits freedom in design

More than 24 different StanLock gasket sections are available from existing tooling. This great variety permits a wide range of curtainwall designs—in horizontal, vertical or grid applications—using glass or panel materials, in any combination with aluminum, steel, concrete or marble. Special sections are still being designed.

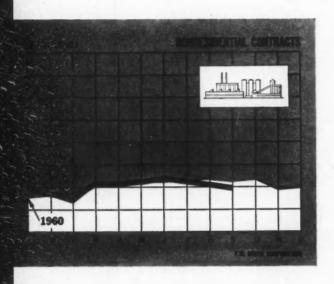


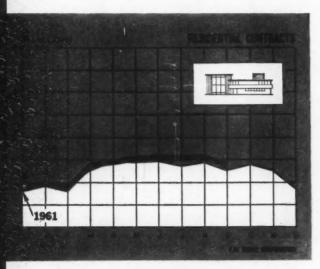


Current Trends in Construction



Total contracts include residential, nonresidential, heavy engineering contracts





HOSPITAL BUILDING UPTREND EXPECTED TO REACH NEW PEAKS

HOSPITAL CONSTRUCTION currently is enjoying a healthy recovery after a two-year lapse. From 1958 through 1960, new building was in the doldrums with successive declines in contract valuation. This year, however, the dollar volume of hospital contracts easily will register a record high. With awards for the first nine months well ahead of last year, we estimate the 1961 total at \$980 million, about 18 per cent above 1960. Floor area represented by hospital contracts will be up sharply to about 43 million sq ft. The outlook for 1962: contracts should approximate their 1961 performance.

ON THE AVERAGE, hospital building has the highest construction cost per sq ft of any building category. This shows up clearly in the spread between dollar volume and physical volume of building. Despite the anticipated gain over 1960, floor area of hospital contracts in 1961 will not match the 1950 peak of 45 million sq ft in the 37 eastern states alone. At no time in the past decade has hospital floor area come close to that mark even after addition of the 11 western states to the Dodge statistical coverage in 1956. In the meantime, dollar volume of contracts has trended irregularly upward with new highs set in 1956, 1957, 1958, and expected again this year. Of course, the general rise in material and labor costs has affected hospital construction as much as any other building type. However, there are some special factors to consider in building hospital facilities to accommodate modern equipment and new treatment practices. Such features as special oxygen piping to individual rooms, decentralized feeding facilities, extra elevators, lead shielding for X-ray equipment, and extremely complex plumbing have helped to boost construction costs.

THE FUTURE DEMAND for hospital facilities promises to be intense. For one thing, the number of the elderly will increase substantially in the 1960's. According to the United States Public Health Service, people in the 65 and over age bracket "consume hospital services at twice the rate of younger people." Rising real incomes and wider coverage of health insurance plans will allow more families to seek the hospital treatment they need. Furthermore, although the backlog has been worked down, there is still a serious shortage of general hospital beds in some areas. In response to these factors, we anticipate a strong upward trend in hospital building during the decade.

FLOOR AREA of hospital buildings as well as dollar volume will rise to new peaks in the 1960's. According to the Modern Hospital Publishing Company, the inclusion of more complete diagnostic and related treatment facilities in new hospitals and the practice of putting fewer beds in hospital wards are largely responsible for the trend toward more floor area per bed.

EDWARD A. SPRAGUE, Economist F. W. Dodge Corporation A McGraw-Hill Company

YELLOWING PROBLEM WITH THIS ACRYLIC

LIGHTING SHIELD

MONOCITE*

Yellowing of acrylic sheets made from MONOCITE is negligible compared with yellowing of non-acrylic plastics. In fact, the Society of the Plastics Industry specifications for the Yellowing Factor due to light exposure are ten times less stringent for non-acrylic than for acrylic plastics. A good reason for specifying acrylic shields made from Du Pont MONOCITE methacrylate monomer for the lighting fixtures in your building.

*Trademark for Du Pont's H-100 methacrylate monomer.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

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	end your lighting booklet.	MONDOIT
Please a	sk an acrylic-sheet manufacture	r to contact me.
NAME		
POSITION		
POSITION		

Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100

NEW YORK

ATLANTA

	RESIDENTIAL		APTS., HOTELS, OFPICE BLDGS. Brick	COMMERCIAL AND FACTORY BLDGS. Brick Brick and and		RESIDENTIAL		APTS., HOTELS OFFICE BLDGS. Brick and	COMMERCIAL AND FACTORY BLDGS. Brick Brick and and		
PERIOD	Brick	Frame	Concrete	Concrete	Steel	Brick	Frame	Concrete	Concrete	Steel	
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6	
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1	
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7	
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5	
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0	
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0	
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.	
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0	
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4	
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.6	
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.	
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.	
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0	
1959	342.7	329.0	367.7	386.8	374.1	252.2	247.7	266.1	272.7	273.	
1960	351.6	337.2	377.7	395.8	390.6	259.2	253.3	274.7	282.5	278.	
July 1961	367.3	346.6	405.4	431.3	403.9	254.8	247.3	275.0	284.0	274.	
August 1961	365.9	344.8	405.1	431.1	403.5	254.8	247.3	275.0	284.0	274.	
September 1961	366.2	344.9	405.7	431.7	404.0	256.0	249.1	276.4	284.9	275.2	
	% increase ever 1939					% increase over 1939					
September 1961	196.5	181.8	210.4	223.6	210.5	196.6	199.7	190.6	192.5	190.6	

ST. LOUIS

SAN FRANCISCO

1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2 256.4	249.7 259.0	255.0	249.6	250.2	245.0	245.6 256.6	248.7	249.6
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	2813	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
1958	297.0	278.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7	320.8
1959	305.4	296.4	315.0	329.8	323.9	299.2	284.4	322.7	338.1	330.1
1960	311.4	301.0	322.2	337.2	329.2	305.5	288.9	335.3	352.2	342.3
July 1961	317.0	303.8	330.2	348.2	332.7	311.8	293.8	347.4	364.6	351.2
August 1961	316.3	302.9	330.1	348.1	332.5	311.6	293.5	349.0	365.3	353.4
September 1961	316.3	302.9	330.1	348.1	332.5	311.6	293.5	349.0	365.3	353.4
September 1961	% increase over 1939 187.0 183.1 178.1 190.6 179.4				% increase over 1939 195.1 195.6 197.3 199.7 203.3					

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110 index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110 - 95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A,

$$\frac{110 - 95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

the classic magnificence of ancient stone captured in modern, everlasting

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Endowed with nature's delicately changing tones and distinctive texture . . . the life-like strata and random pebble formations . . . the noble complexion for which stone is so admired. TRAVATEX . . . in practical, modern Vicrtex vinyl wall-coverings. Care-free as stone, yet will not stain, chip, fade or crack. The newest tri-dimensional Vicrtex Original Pattern . . . in 14 refreshing colors. ing colors.

* vinyl electronically fused

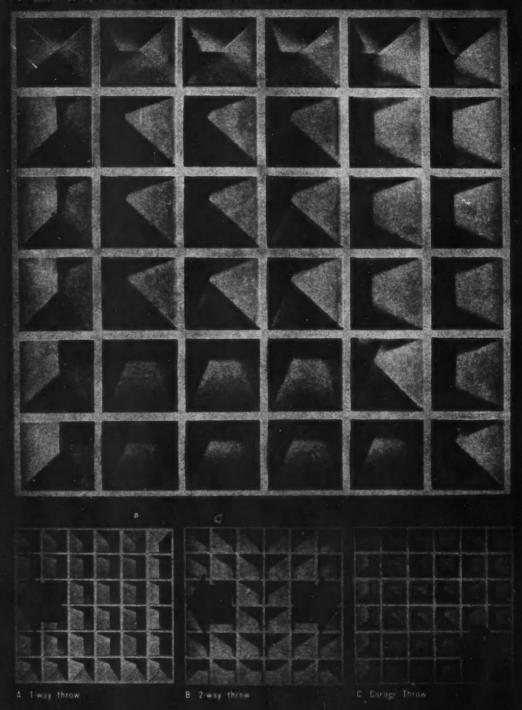


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CARPENTER COMPANY

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"By combining multiples of my three basic air throw patterns, I can solve almost any air handling problem"

only a



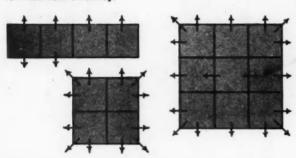
can make

these

statements

I am unobtrusive My small texture makes me blend inconspicuously with any ceiling material. I fit flush with the ceiling, too, and four of me make a square 12" x 12" — the size of a standard ceiling tile. I have very little seethrough.

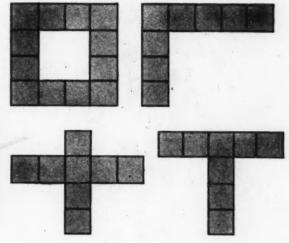
I am versatile By combining any one of my 3 air patterns, shown on the opposite page, I form an infinite number of sizes and shapes, to direct air in 1, 2, 3 or 4 directions for maximum efficiency.



I fit any design My square shape and size (6" x 6") make me an ideal module for any architectural design. Just check the ways I can be used: butted to lights, spacers between lights, alternating line with lights, continuous strips around ceiling coves, along corner windows, around columns.

I am interchangeable Just snap me into my simple frame. I may be easily removed to change direction of air throw made necessary due to rearrangement of occupied areas, or for periodic cleaning.

I make any shape That is, except a circle.



I work with any ceiling Plaster, tile, metal pan, "T" bar, spline — you name it and I have a frame that works efficiently with it. I have a frame to fit any combination of shapes or sizes you want to use me in.

I am tough Carnes makes me out of General Electric's LEXAN* — that's a high impact, fire retardant material with excellent color and dimensional stability. I'll give years and years of service. *Registered Trade Mark

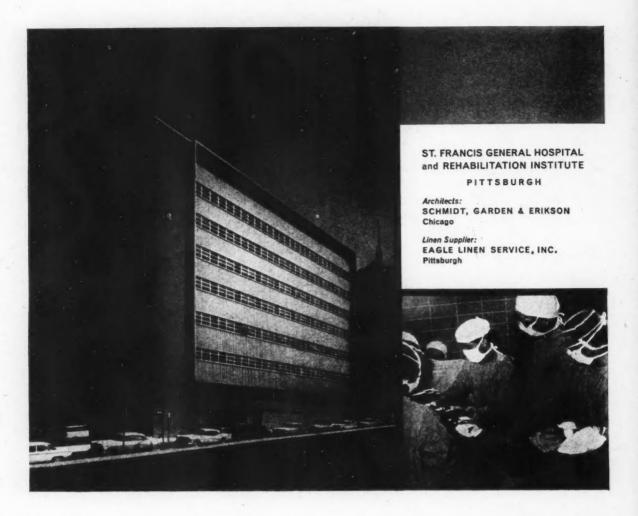
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Carnes also manufactures: Round, Rectangular, Square, Convertible and Baseboard Diffusers • High-Velocity ATC Units • Low-Velocity ATC Units • Registers • Grilles • Roof and Wall Ventilaters

CARNES CORPORATION, VERONA, WIS





Linen Supply Service solved a \$300,000 problem for St. Francis General Hospital

Spend \$300,000 for a new laundry, when the real need was expanded and improved facilities for patient care? This was the problem facing Pittsburgh's St. Francis Hospital in enlarging its capacity to 740 beds. The solution was found in linen supply service. Thus, the funds otherwise required for a new laundry were utilized to expand and improve direct patient care.

Now, St. Francis Hospital leases some 80 different linens, garments and other cotton goods. These items range from bedsheets to surgeons' masks. In a typical month, St. Francis General uses some 300,000 of these articles—all on a rental basis.

Check your local linen supplier to find out how much better hospitals and other institutions you design can operate with linen supply, and how much more planning freedom such service gives you. You'll find the name of your linen supplier listed in the Yellow Pages under "Linen Supply" or "Towel Supply."

ARCHITECTS

FREE BOOKLET. Case histories and suggestions for designing the most efficient linen supply services into schools, hospitals, restaurants and motels are available. Mention booklet(s) wanted.



Linen Supply

and National Cotton Council - 22 West Monroe Street, Chicago 3



Architect: Anderson Beckwith & Haible, Architectural Metal Pobricator: Continental Bronge Co., Inc., General Contractor: George A. Fuller Co

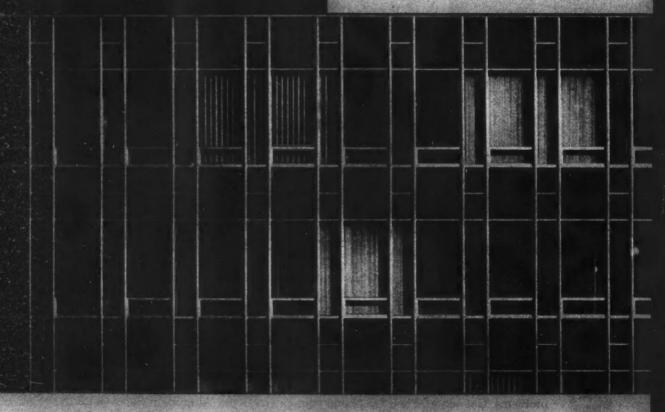
Once more, Olin goes to great panes.

This time Olin Aluminum is on the scene in the Raytheon General Offices, in the form of extrusions. More and more builders and architects are discovering the range and versatility of Olin Aluminum in curtain wall applications. Curtain walls of metal, brick, marble, slate, ceramics, glass can look better and last longer when the framing comes from Olin Aluminum. Why? Simple. A primary producer, Olin, offers its task force of design engineers and consultants to help fabricators attack each problem in terms of its own needs. Special designs, special shapes and sizes, and often considerable savings, are all in a day's work. We like to solve problems. Got some? Then telephone your nearest Olin Aluminum Sales Office. There's always an answer — in aluminum — when you put your questions to Olin.



ATTENTION TO DETAIL

■ Order and rhythm and attention to detail create the interesting facade of this Cincinnati bank building... handsome addition to the suburban community it serves. The crisp handling that gives character to the facade is only one aspect of the scrupulous attention to detail which marks the entire structure. Like so many modern buildings it is served by Dover (formerly Shepard) Elevators, which are built with patient attention to detail to insure dependable vertical transportation. Dover's new Model GDF-25 (above) is a medium duty geared hoisting machine with many advanced features. It is ideal for apartments, clinics, motels, small offices, banks and similar buildings. For complete information see Sweet's Files or write Dover Corporation, Elevator Division, 1140 Kansas, Memphis 2, Tennessee.

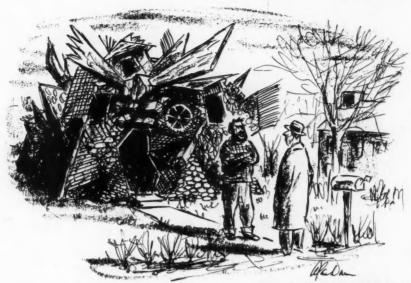


DOVER ELEVATORS IN



Fine elevators since 1861

Meetings and Miscellany



-Drawn for the RECORD by Alan Dunn

"Michelangelo was a sculptor turned architect and I am a sculptor-ergo!"

New Chief Economist Named By F. W. Dodge Corporation

Dr. Gordon W. McKinley has been appointed a vice president and chief economist of F. W. Dodge Corporation, publishers of ARCHITECTURAL RECORD among many services and publications in the construction field.

Dr. McKinley, who will also act as economics consultant to the RECORD, has previously been executive director of economic and investment research for Prudential Insurance Company of America. Before joining Prudential in 1951, he taught economics first at Lehigh University and later at Ohio State.

A 1938 graduate of McMaster University, Hamilton, Ont., with a B.A. degree, Dr. McKinley received his master's and doctoral degrees from Ohio State University. He is the author of numerous articles in professional journals and co-author of the book The Federal Reserve System.

Architectural League Holds Gold Medal Competition

Open submissions are invited for the 1962 National Gold Medal Exhibition of the Architectural League of New York, to be held next April 6 through 27 in the League building, 115 E. 40th Street, New York.

Both open submissions, which

must be received at the League by January 2, and a group of invited submissions will be eligible for the League's Collaborative Medal of Honor and for Gold and Silver Medals and Honorable Mentions in the fields of architecture, landscape architecture, engineering, mural decoration, sculpture and design and crafts. Submission is open to any practitioner who is a citizen of the U.S., whether or not he is a member of the League; work submitted must have been completed between Jan. 1, 1959 and Dec. 31, 1961 and, in the allied arts, must have a relationship to architecture.

Complete details and entry blanks may be obtained upon request to the League.

Dunn Appointed Head of A.G.C.

William E. Dunn has been appointed executive director of the Associated General Contractors of America, to succeed the late James D. Marshall.

Mr. Marshall died on November 3rd from complications following an operation. He had been connected with the A.G.C. since 1925, having become assistant managing director in 1940, executive director in 1953, and in 1956 chief executive in the management of the association.

In announcing the appointment of Mr. Dunn, M. Clare Miller,

A.G.C. president, said: "Mr. Dunn has been affiliated with the A.G.C. national staff for 14 years, and has been assistant executive director for nearly six years. During this time he has been closely associated with Mr. Marshall in the administration of A.G.C. policies and operations."

Morgan Receives Building Stone Institute Award

The Building Stone Institute Annual Architect Award for distinguished use of natural stone was presented this fall to Lloyd Morgan, F.A.I.A.



(Left to right) Lloyd Morgan and Gen. C. J. Hauck, chairman of Building Stone Institute Awards Committee

He was cited for "inspiring contributions in the field of architecture . . . imaginative creativity in utilizing natural stone in distinguished buildings of enduring beauty throughout the world."

continued on page 30

The key to school air conditioning is in your hands...

Changing educational patterns demand flexible schools with learning spaces equipped for year-round air conditioning under unitary controlas an economic necessity based upon educational productivity for the life of the building.



New schools need air conditioning.

To produce the quality and quantity of education required in the future, school buildings must be free of the excess heat that shackles learning in many of the nation's classrooms from early spring to late fall. School people know this; but some of them are inhibited by public opinion or by the notion that an air-conditioned school must be an inartistic box. It is largely up to you to correct these impressions . . . by explaining how air conditioning eliminates the greatest physical threat to learning, and by showing how it frees school architecture from old clichés and permits you to meet the educational specifications with originality and economy. As you know, a renaissance in school design is already under way, stimulated by the need for controlled environment schoolsand Nesbitt Year-Round Unit Ventilators are being widely employed as the preferred equipment for all-season thermal comfort in every learning space. Nesbitt can help you to explain the importance of school air conditioning with slide films, case studies, cost data, publications, and other services.

MORE LEARNING PER SCHOOL DOLLAR

Mesbitt AIR CONDITIONING FOR SCHOOL



Year-Round Unit Ventilator and Storage Cabinets . Made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa.

NEW NEW NEW NEW NEW NEW



Bottom View of PARAHEX Louver

Top View of PARAHEX Louver

When the PARAHEX Louver is used in its metalized finish and is installed in fixtures and or luminous ceilings, it controls the lamp brightness so well that it is sometimes difficult to distinguish whether or not the lamps are actually lighted — yet the PARAHEX Louver may be providing a maximum of illumination levels.

The new PARAHEX Lauver offers new applications in lighting design and adds new functional beauty to lighting installations.

Not only is the PARAHEX a new advancement in lighting

camfort, but it is also an outstanding achievement in the field of plastic molding. In the PARAHEX, Sinke has again proven its ability to meet the challenge of molding the unusual.

PARAHEX Lauvers are available in one piece, nominal 2 ft. by 4 ft. panels, in either translucent white Palystyrene, specular and satin aluminum vacuum plated metalized finishes, and in Acrylic, either translucent white or crystal clear. PARAHEX cell dimensions are 1 $2^{\prime\prime}$ high x 3 $8^{\prime\prime}$ x 9 $.16^{\prime\prime}$ with 45 \times 45 shielding.

We invite you to write today for design samples and engineering data sheets



7310 W. Wilson Avenue . Chicago 31, Illinois

Spike Manufacturing, & Tool Co. of Canada, Etc. 15. February Stool V. 155.

"Manufacturing under Konnie from General Flectics, Company Pat. No. 237 Sept.

Meetings and Miscellany

continued from page 27

New Postgrad, Undergrad Programs at Columbia

In recognition of the increasing demand for specialized architectural study, Columbia University's School of Architecture has instituted two new postgraduate programs. The new programs, both leading to the degree of Master of Science in Architecture, provide the opportunity for architects to gain intensive specialized training in the design of medical or educational facilities.

Dean Charles R. Colbert said. "Columbia's School of Architecture is, to the best of my knowledge, the only architectural school in the United States offering degrees in 'specialties'-that is, degrees in building-types or problem areas. We ... believe that this is a highly significant innovation in architectural education. What it means in essence is that the design of medical and educational facilities will at last be entrusted to architects and planners specially equipped to handle the numerous problems inherent in the design of these complex buildings."

The program in medical facilities planning will be conducted by the School of Architecture in conjunction with the School of Public Health, the educational facilities program, with Teachers College.

"The new programs," Dean Col-

bert explained, "are based on the assumption that mere technical competence is not sufficient for the design of buildings so vital to the community welfare. To design an effective educational or medical plant necessitates an understanding of the disciplines of education and medicine themselves . . Students come to us imbued with the viewpoint of the architect; we intend to expose them to the viewpoints of the educator and the hospital administrator."

In addition to the postgraduate programs, Columbia's School of Architecture will offer for the first time the degree of Bachelor of Planning, as well as the traditional degree of Bachelor of Architecture. Moreover, to insure that future architects and planners will be able to work effectively with each other, all undergraduate students at the School, irrespective of their intended fields of specialization, will be required to take a core curriculum of courses in both architectural and planning design.

According to Dean Colbert, "Essentially our revamped curriculum has two aims. The first is to provide community planners with comprehensive professional training. The second is to provide a basis of communication between architects and planners, diminishing the schism that has grown up between them and, hopefully, producing more intelligent

building programs.

"The new emphasis," Dean Colbert said, "is on the city-which is, after all, the central problem confronting both architects and planners today. The sad plight of today's metropolises, the haphazard fashion in which urban centers have been allowed to grow, might well have been avoided had there been more communication between architects and community planners. Future projects for urban rehabilitation-which many large cities have already embarked upon-will be similarly ill-fated if this communication-gap is allowed to continue. We at Columbia hope to do our part in insuring that history does not repeat itself. It is a task upon which the very future of urban society depends."

Hellmuth Elected Fellow in International Institute

George F. Hellmuth, Hellmuth, Obata & Kassabaum, St. Louis, has accepted election to life membership as a Fellow in the International Institute of Arts and Letters, Kreuzlingen, Switzerland. The Institute's world-wide membership consists of 1760 Fellows and Corresponding Members "qualified by notable achievements in Arts, Letters or in Sciences and other fields of culture."

SAARINEN MEMORIAL SERVICE HELD IN M.I.T. CHAPEL

A memorial service for Eero Saarinen was held on September 9 in the renowned circular chapel he designed for the Massachusetts Institute of Technology. The service was conducted by his—and his father Eliel's—longtime friend and client, J. Irwin Miller of Columbus, Ind., and it went as follows:

Let us remember the life of a good man. Hear the words of the Psalmist:

Blessed is the man who walks not in the counsel of the wicked

Nor stands in the way of the sinner, Nor sits in the seat of scoffers.

But his delight is in the law of the Lord

And on His law he meditates day and night.

He is like a tree planted by streams

of water

That yields its fruit in its season, And its leaf does not wither.

In all that he does, he prospers.

Let us remember the life of a man who loved and was loved. Hear the words of Elizabeth Browning:

Go from me. Yet I feel that I shall stand

Henceforward in thy shadow. Nevermore

Alone upon the threshold of my door Of individual life, I shall command The uses of my soul, nor lift my hand

Serenely in the sunshine as before, Without the sense of that which I forebore,—

Thy touch upon the palm. The widest land

Doom takes to part us, leaves the heart in mine

With pulses that beat double. What I do

And what I dream include thee, as the wine

Must taste of its own grapes. And when I sue

God for myself, He hears that name of thine.

And sees within my eyes the tears of two.

Let us remember the life of a great man, who wrought more than most. Hear the words of Pericles:

To famous men all the earth is a sepulchre, and their

virtues shall be testified, not only by the inscription

in stone at home, but by an unwritten record of the

mind, which more than of any monument will remain with everyone forever.

continued on page 232



BORDEN ARCHITECTURAL DECOR PANELS

Now Borden brings a new building component to the architect—durable light-weight aluminum panels which can be custom-styled in an infinite variety of forms and designs. For example, the extruded type shown here can be had with design punchings of squares, circles, ovals or combinations of curves and straight lines.

The new Architectural Decor Panels by Borden are an extremely flexible medium, allowing the architect a rare freedom of expression in designing facades to blend with the nature of the building, its setting, and the preferences of his client. The dramatic effects achieved with

this new material are being discovered daily; additionally, these panels are unexcelled for sturdiness, economy, ease of handling and installation, and ventilation.

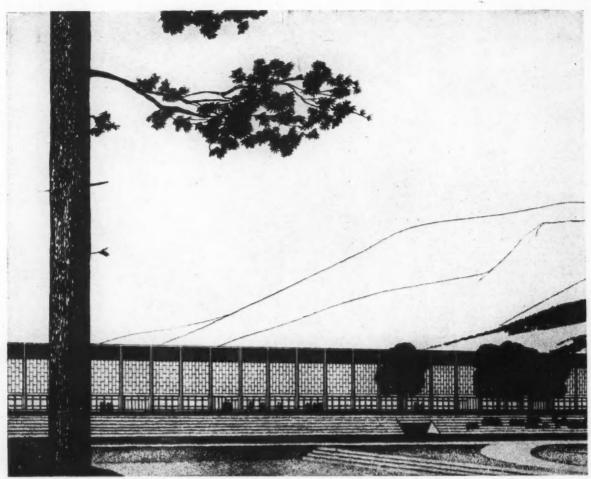
Not limited to facades, the Borden Architectural Decor Panels are used as interior partitions, grilles, window guards, stair rails, doors, entryways, sunshades, and are especially adaptable in the refacing of existing buildings.

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ARCHITECTURAL RECORD

Western Section®

WESTERN SECTION EDITOR: Elisabeth Kendall Thompson, A.I.A.

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Criticism Is More Than A Flaming Sword

"We were talking about criticism," said the young architect next to me, skillfully ducking to avoid the skewer of flaming shish kebab being served him. "And I said I thought it was good to have notice taken of architects. Even if it's not favorable, at least they're being noticed."

"It depends on what you have done that is getting noticed," I replied. "It's not so good to be known for murder, is it? And when what's been done isn't really a crime, but is damned as one, do you think that's good?

"There's no sport in criticizing a bad building, you know. Yet buildings of poor or bad design—as happily accepted by the public as buildings of good design—are what make our cities ugly. They and their siting are obtrusions on the eyes of all who see what they look at. It's the bad design that needs criticism, but it's the good and fairly good that gets it. Perhaps criticizing a bad building seems too easy and doesn't offer enough challenge to the critic."

"You mean that criticizing the good building—or at least the building whose faults are not really glaring—proves the critic's discerning eye?"

"Could be. At any rate you can be sure that criticizing the good building isn't going to make architects design better buildings and it isn't going to help the public to demand only good design because the public won't really know what good design is. The man in the street hasn't the criteria to judge either the building or the criticism. He only knows what he likes—and what he reads in the paper.

"There's enough confusion nowadays without confounding the confusion over design. Why, some criticism even confuses architects! How can it fail to confuse laymen? Good design needs to be analyzed, too, as good design, so that it's clear what makes a good building. If critics can give a clear understanding of what makes good design and what makes bad design, there's the beginning of some standard against which to judge—to evaluate—buildings."

"Then criticism must suggest context and criteria, and must make a distinction between what's good and what's bad?"

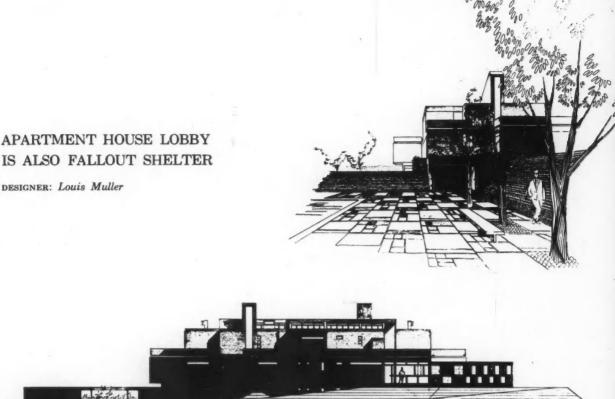
"Yes—because criticism is more than just a flaming sword on which to skewer architecture (and architects). Good criticism deepens understanding and so sets standards for evaluation. New standards mean new attitudes—and we could do with some changes."

"Will we get this kind of criticism?"

"Who can say? As you say, architects are in the limelight. Only they can make this a good experience: 'by their deeds ye shall know them'."

E. K. T.

APARTMENT HOUSE LOBBY



STREET FLEVATION

BLAST AND FALLOUT ARE NOT THE SAME

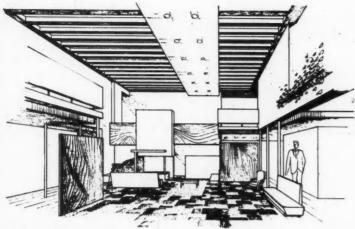
It has become almost as difficult to talk calmly about fallout shelters as it is about politics and religion. Perhaps this is because, in a very real sense, the basic question of fallout shelters has been so closely bound up with both religion and politics, and has become a very personal issue. In any case, architects are already being involved in queries from clients about the design and construction of fallout shelters and should have the information and the facts with which to discuss the question with clients.

Fallout shelters are not a building type that architects generally seek to do, for they represent a denial of the accepted positive procedure of architecture which deals with visible construction and dynamic forms in space, and which provide knowingly for a foreseeable future. The fallout shelter, if it is underground, is a negative sort of procedure, its form a passive mould, and it provides for an unknown and quite unimaginable time and an unknowable future. The idea of the fallout shelter, quite apart from any political overtones or undertones, is repugnant to the architect.

Nevertheless, whatever their reaction to the idea of the shelter, architects owe their clients the facts on which to make decisions. The fallout shelter is an excellent means of withstanding high levels of radioactivity, provided it is far enough away from ground zero to be untouched by blast effect, fire, smoke and tremendous heat. If it is not that far away, the fallout shelter is a precarious solution to possible survival.

Within a radius of a hundred miles or so of a target, blast effects will wreak destruction and devastation; barring saturation bombing, an area with a radius of hundreds and even thousands of miles would be subject only to the falling particles from that explosion. It is within these areas away from a predictable target that fallout shelters have some feasibility. Once the radioactivity of fallout particles had declined to safe levels-the period would vary with the element's half-life, the rate at which a radioactive isotope reverts to its non-radioactive state—such an area would be physically much as it had been before.

The apartment project shown here takes a positive design approach to the problem recognizing, as did architect Albert Sigal's fallout-protected school (WESTERN SECTION, March 1959, pp. 64-2, 3), that fallout protection and environmental delight are not mutually exclusive elements of building design.



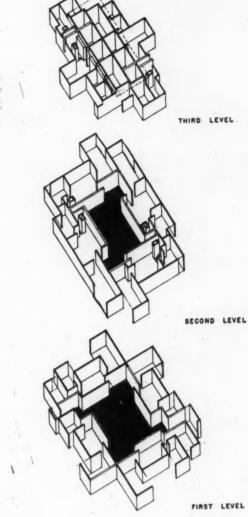
COMMON FALLOUT SHELTER

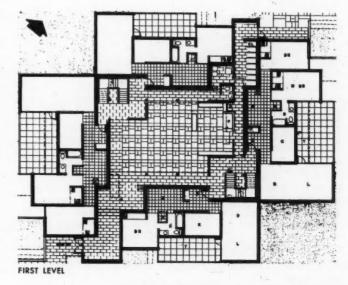
Using the premise that architecture is essentially the design of an enclosed environment which provides shelter from the commonly experienced elements of wind, rain, heat and cold, Louis Muller, a fifth year student in the Department of Architecture at the University of California's College of Environmental Design, designed this apartment building which adds to these functions that of protection from the unseen element of radiation. Muller's program, worked out with his instructor, Carl Kolbeck, and consultant Myron Hawkins, radiological effects research engineer. was to incorporate a shelter in his design whose environment would "transcend the repelling aspect of its use, which would be shelter from fallout if needed but would not in itself suggest this use and which would, in effect, pass unnoticed except as a large interior space for use, in a wide variety of ways, by all tenants."

In arriving at his solution, Muller decided that his shelter should not be an adjunct to the building but should be an integral part of it and therefore an important and essential factor in the building's form. Since protection from fallout is a matter of mass and distance from the radiation source, the shelter was located in the center of the building with the apartment units piled around and over it.

Designed as a pleasant transitional space between outdoors and as access to apartment units, the lobby-shelter is no dark dungeon: two large vertical skylights (see elevation), one at each end of the room, admit daylight but would not admit fallout since fall-out particles could be assumed to fall directly down and their radiation would not turn corners.

A detailed analysis of the fallout protection of such a design, made by engineer Hawkins, indicated that the shelter room would have a protection factor of 650 at a level three ft from the floor, 500 under the skylights. (Ratings of between 250 and 1000 are considered "good" for heavy fallout and "excellent" for medium or light fallout conditions.) This rather high factor resulted from the shielding of the central space by 8-in. concrete exterior walls and 12-in. concrete interior walls around the shelter, and from the 8-in. concrete slab roofs. Additional shielding could have been obtained by placing a layer of earth six to 12 in. deep on the roof since this would be the largest source of radiation



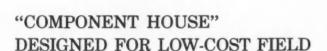




Palm Springs house is definitely for a desert climate



Portland house has some of Northwest's character



ARCHITECTS: Kenneth A. and Robert F. Gordon

CLIENT: "On Your Lot" Sales of Southern California and

Oregon

BUILDER: Economy Certified Homes

This economy house-selling price last February in Palm Springs was \$3995—was specifically tailored by its architects and builders to the low cost field, but in making possible the low price, rapid erection was also achieved. Since the client's operations are in two very different areas-one the flat, dry Southwest, the other hilly, often rainy Northwest-the plan had to be adaptable to a variety of sites; and since mass sales were an essential part of keeping the price low, the size of the house had to be variable to make it attractive to a wide market. The modular design makes it both expandable (it can provide as many as four bedrooms without basically changing the scheme) and adaptable to various kinds of sites. Exact cost control, the other essential in the low cost, was obtained by applying assembly line production to the components of the house, doing all possible work at the plant. As a result, little work is necessary in the field and the house can be completely erected in two days' time. The house received a Special Award in the 1961 Sunset Magazine-A.I.A. Western Home Awards Program.



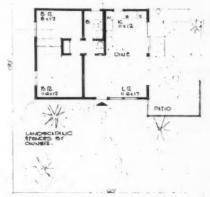
Slab was poured, plumbing lines placed on previous day



8 a.m.: Components arrive at site



4 p.m. All components erected

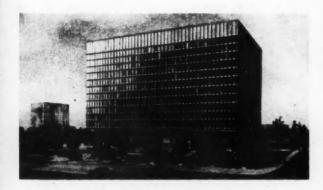


Basic Plan



TWO YOUNG ARCHITECTS WIN RED ROCK HILL COMPETITION

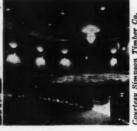
The coveted chance to design the high-and-low-rise dwelling units that will crown the crest of Red Rock Hill in San Francisco went to two young architects, B. Clyde Cohen and James K. Levorsen when, in a dramatic moment at the land auction, a representative of developers Peninsula Apartments—the high bidders—announced his company's preference for their scheme. The Cohen-Levorsen scheme was one of four chosen by San Francisco's Redevelopment Agency to offer to developers interested in bidding on the land at Red Rock Hill, part of the Agency's Diamond Heights redevelopment project. Bidders were required to choose one of these four designs (WESTERN SECTION, August 1961, pp. 32-2,3). Peninsula Apartments' bid of \$4,525,000 was the auction's fifty-first in a 40-minute bidding period which had opened with a bid of \$1 million. The competition and auction represented the third unusual method used by San Francisco redevelopment director Justin Herman and the Redevelopment Agency to obtain outstanding architectural design in its redevelopment projects to make "a more handsome city."



CONSTRUCTION STARTS ON FABULOUS CENTURY CITY'S FIRST BUILDING

Ground breaking early last month for the 13-story Gateway West office building signaled the start of construction of Century City, the \$500 million planned community to be built on the site of the old Twentieth Century-Fox lot in Los Angeles. Gateway West-and its counterpart, Gateway East-will be set back 100 ft from a tree-lined avenue to provide the "open, spacious feeling" that William Zeckendorf, co-developer of Century City with Aluminum Company of America, wanted the development to have. The \$8.5 million office building will be of reinforced concrete construction with a new type of curtain wall whose light gold anodized aluminum spandrels will be contrasted by an aluminum frame finished in charcoal brown. All parking will be underground, leaving the surface area of Century City to pedestrians. Beyond the two office buildings will be a retail center. Besides office buildings and stores, the new community will include apartment buildings, a hotel and a medical center. Welton Becket and Associates, architects, Gateway West; coordinating architects and master planners, Century City.





MANY SMALL UNITS
MAKE UP FOOTHILL COLLEGE

Foothill College, a junior college which serves four communities at the southern end of San Francisco's Peninsula, is a collection of 36 units-classroom buildings, administrative and faculty offices, library, student union, auditorium and stadium and swimming pool-grouped by function and use in a quasi-formal pattern on a 122-acre plot of rolling foothill land. In use for the first time this fall, the \$12 million college provides for 4000 students. The individual classroom units, mechanically as well as structurally independent, can be used in a wide variety of ways; their interior space can be subdivided to meet future as well as present teaching methods. Adjoining each classroom building is a low, flat-roofed office unit. Redwood siding and roof shakes give the buildings an informal character; the brick paved courts of various sizes between units are pleasant gathering places for students. Ernest J. Kump and Masten, Hurd & Gwathmey, architects.

C.C.A.I.A. HOLDS LARGEST CONVENTION EVER

Over 1000 registrants made this year's convention of the California Council, A.I.A., its largest to date. Held at the Hotel del Coronado, across the bay from San Diego, the convention presented a program loosely woven around the theme "Adios Suburbia-New Glamour for the Center City" with a roster of nationally-and internationallyknown speakers discussing their approach to the problem.

Most provocative speaker was William Zeckendorf, New York real estate tycoon whose projects within the center of many of this country's metropolitan areas have already had considerable impact on these areas. In his hard-hitting address Zeckendorf urged that "anybody who thinks in terms of investment reflect on what has timeless, unalterable value and ever-appreciating worth":

"There are only a few of these values. One is philosophy. another literature, and a third-perhaps the one that pays off best-is beauty in construction. It therefore has come to our conclusive determination of philosophy in construction that if we build beautifully, we ultimately will have built for profit. . . . If our company as a speculative real estate company has made any contribution of which we are proud it is that we feel we have introduced into this aspect of construction an appreciation for first-class architecture-imaginative, esthetic and functional-which is not just soul-satisfying but, I can assure you, rewarding in the purest sense of economics."

Zeckendorf's talk centered, however, on the fact that Southern California "has no city and no suburbs: it is all one and it is growing adhesively in a very rapid manner. You have permitted effusion and have created a condition I am certain can only end in a psychotic population-and I am not sure that has not already taken place." His proposal for alleviating it is, he said, to work with nature and with the mountains (the coastal range and its foothills which are the eastern backdrop for Southern California's cities) instead of fighting them. He expects to implement his own suggestion of providing housing for, say, 250 persons in a building which occupies one acre of a 100acre plot, with the remaining acres dedicated to park use. Savings in sewers, roads and water connections make it feasible to "give better housing and so much in emoluments," he said.

Keynoter Samuel T. Hurst, new dean of U.S.C. School of Architecture, made his large-scale debut with West Coast architects in an address directly centered on the convention theme, making a plea for renewed vitality by a broadened scope in planning the city's center areas and deeper insight into its economic and moral forces.

"The architect's unique involvement with the modern city means that he must be concerned with the five realities of which plans for cities have to be made: spatial, social, economic, power and ethical realities. Obviously these exceed the training and experience of any man . . . but the methods of collaborative effort have been well demonstrated. The architect must now earn as well as assert his preeminent responsibility for the city, for uniquely he bears the burden of its future."

In other sessions of the convention Carlos Contreras of Mexico presented the paper which Guillermo Rosell, who



Left: Real estate magnate Zeckendorf and C.C.A.I.A. president Frank Hope with Hope's model of San Diego Home Federal Building. Right: Convention chairman Charles Fry, Frank Hope and Charles Luckman



Editor James Britton of San Diego, with Los Angeles' John Detlie and Byron Barnes, Cal Poly's George Hasslein, Robert McCabe of Bakersfield and County Planner Gordon Edwards, San Diego



Gazebo at entrance to exhibits was designed by Cal Poly students

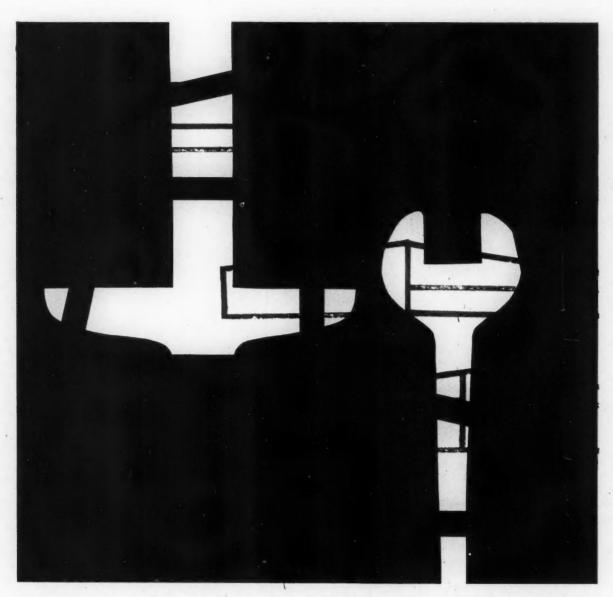
was unable to be at the convention, had prepared for it; James Stirling of England told of the New Towns and the new communities in old cities in England; Detroit planning director Charles Blessing and Samuel Wood Hamill participated in a panel discussion on the architect and the modern city; and architects Charles Luckman, Wayne Hertzka and Herman Light took part in a seminar on professional practice.

Professional News

Tour to Prestressed Concrete Meeting

A tour of several European countries which will include attendance at the Fourth World Conference on Prestressed Concrete, to be held May 28-June 2 in Rome and Naples, is being organized by structural engineers Jack Meehan and William Pattillos and has the endorsement of the Structural Engineers Association of California. The tour is designed to promote attendance at the Conference and to provide opportunity for American engineers to visit laboratories and structures in a number of European coun-

continued on page 32-12



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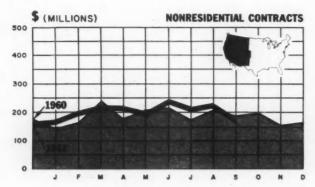


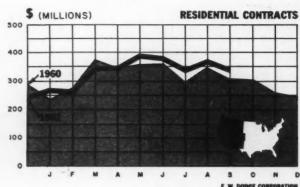
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Western Construction Trends

(For analysis of construction trends nationwide, see page 18)





Construction in the 11 Western states in September rose above year-earlier levels and continued to do better than the national performance. Total Western contracts amounted to \$683,142,000, up three per cent from September 1960. Nationwide, construction contracts suffered a four per cent decline. For the first nine months of 1961, contracts in the West jumped nine per cent ahead of the same period last year, while for the country as a whole, contracts were up only three per cent.

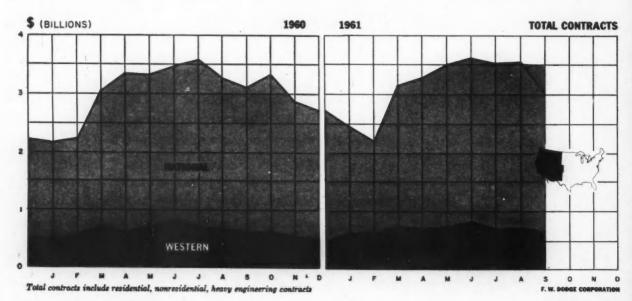
Residential building provided the major push in the West for the month of September. Contracts in this sector totalled \$339,779,000, up 12 per cent from last year's level. Substantial gains were scored in both the apartment and single-family house categories. Contracts for hotels

and dormitories were up even more sharply. Significantly, for the year to date, single-family housing in the West has now drawn almost even with 1960, while it still lags three per cent behind on a national basis.

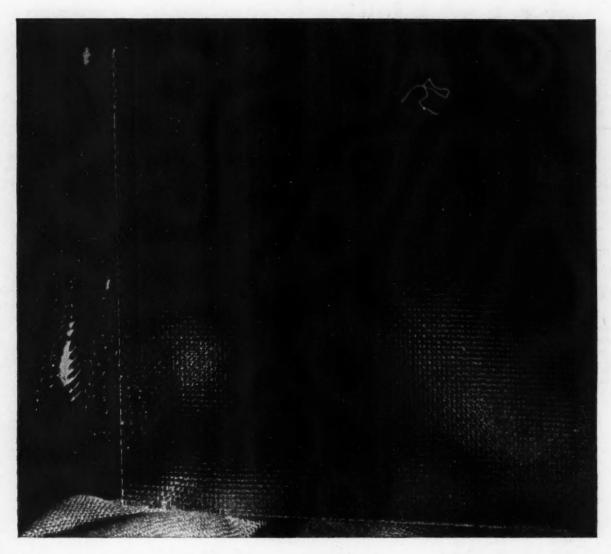
Also on the housing front, there was another encouraging report on rental housing vacancies. According to the latest Census survey, the rental vacancy rate in the West dropped to 9.4 per cent in the third quarter this year, down from 10.7 per cent in the second quarter and 11.0 per cent in the first. We should not assume that this represents a reversal of the longterm upward trend in rental vacancies, but it is a hopeful sign of some stabilization. In any event, the rapid pace of apartment construction in the West (contracts up 30 per cent for nine months 1961) does not seem to be putting an undue strain on the rental market. Some of the concern that has been voiced over the apartment building situation may subside.

Turning back to the September Dodge figures, contracts for non-residential buildings in the West dropped eight per cent to \$174,443,-000. Commercial buildings and religious building types were down. Heavy engineering contracts also fell behind last year by a scant one per cent. A large drop in utility contracts more than offset an increase in contracts for public works. On the national level, contracts for both the nonresidential building sector and heavy engineering construction were down further than in the West.

EDWARD A. SPRAGUE, Economist F. W. Dodge Corporation A McGraw-Hill Company



32-8 ARCHITECTURAL RECORD December 1961



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Western Cost Construction Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100 DENVER

LOS ANGELES

	RESID	ENTIAL	APTS., HOTELS OFFICE BLDGS. Brick and	FACTORY Brick and		RESID	ENTIAL	APTS., HOTELS OFFICE BLDGS. Brick and	FACTORY Brick and	
PERIOD	Brick	Frame	Concrete	Concrete	Steel	Brick	Frame	Concrete	Concrete	Steel
1939	112.0	112.1	116.1	117.8	117.0	97.2	93.6	103.7	104.9	106.2
1948	217.8	218.1	202.7	207.0	206.7	215.9	216.5	205.8	210.0	209.8
1949	215.8	212.9	211.0	215.3	214.6	207.0	203.2	209.9	212.4	210.2
1950	230.0	228.2	218.8	221.3	221.2	224.1	222.8	217.4	219.0	217.5
1951	249.7	246.6	236.5	237.2	238.9	241.0	239.5	235.1	236.9	236.6
1952	253.6	249.4	243.4	245.1	245.6	243.8	241.7	239.8	242.6	241.5
1953	259.6	254.0	255.0	260.9	258.1	250.5	246.5	252.3	258.2	255.3
1954	258.9	252.0	259.1	266.2	263.4	251.0	245.3	257.7	265.7	261.
1955	266.6	260.9	266.3	273.2	271.7	262.1	256.6	269.3	278.0	273.9
1956	274.9	269.3	275.8	282.3	285.1	272.6	266.7	282.9	292.9	289.
1957	281.3	272.2	285.4	293.1	296.4	275.4	267.9	292.8	303.3	303.
1958	282.2	272.0	288.1	295.9	298.8	277.9	286.6	302.6	314.5	316.
1959	288.7	278.9	295.2	302.9	304.8	288.7	279.1	314.9	326.9	327.
1960	292.2	282.7	301.3	309.0	310.0	299.8	287.7	329.1	342.7	339.
July 1961	297.1	286.6	310.8	320.6	313.6	307.6	292.1	343.7	359.8	350.
Aug. 1961	298.0	288.6	312.4	320.8	314.2	306.2	290.3	343.4	359.6	, 350.
Sept. 1961	297.2	287.2	311.8	320.8	313.9	306.2	290.3	343.4	359.6	350.
	% Increase over 19			39	% Increase			Increase over 193	rease over 1939	
Sept. 1961	165.3	156.2	168.6	172.3	168.3	215.0	210.1	215.9	242.8	229.

SAN FRANCISCO

SEATTLE

										0
1939	105.6	99.3	117.4	121.9	116.5	104.4	96.7	119.2	125.3	118.7
1948	218.9	216.6	208.3	214.7	211.1	216.3	211.4	211.5	216.6	216.9
1949	213.0	207.1	214.0	219.8	216.1	214.2	203.9	220.7	228.5	225.3
1950	227.0	223.1	222.4	224.5	222.6	224.1	213.6	227.1	234.5	230.3
1951	245.2	240.4	239.6	243.1	243.1	245.1	232.7	247.7	255.8	251.0
1952	250.2	245.0	245.6	248.7	249.6	254.3	239.8	258.8	267.7	263.8
1953	255.2	257.2	256.6	261.0	259.7	254.8	239.0	262.7	273.6	269.5
1954	257.4	249.2	264.1	272.5	267.2	253.3	236.1	266.6	279.1	274.0
1955	268.0	259.0	275.0	284.4	279.6	260.6	243.3	273.7	287.3	282.4
1956	279.0	270.0	288.9	298.6	295.8	273.5	254.0	288.5	303.4	299.0
1957	286.3	274.4	302.9	315.2	310.7	275.6	254.0	298.2	313.1	311.2
1958	289.8	274.9	311.5	326.7	320.8	279.9	256.4	306.0	324.0	320.8
1959	299.2	284.4	322.7	338.1	330.1	291.5	267.8	318.8	336.9	331.8
1960	305.5	288.9	335.3	352.2	342.3	298.9	272.4	330.5	351.2	342.9
July 1961	311.8	293.8	347.4	364.6	351.2	296.2	268.1	335.3	357.3	345.4
Aug. 1961	311.6	293.5	349.0	365.3	353.4	297.4	268.7	336.8	359.7	346.3
Sept. 1961	311.6	293.5	349.0	365.3	353.4	297.4	268.7	336.8	359.7	346.3
	% Increase over 1939					% Increase over 1939				
Sept. 1961	195.1	195.6	197.3	199.7	203.3	184.9	177.9	182.5	187.1	191.7

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110 - 95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110 - 95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

Bank of America branches with MOSat.

When building small attractive branch banks for customer convenience, or large central service centers,* Mo-Sai precast concrete curtain walls meet the requirements.

On the Golden Gate-Hyde Branch, typical of the many new Bank of America branches, natural buff quartz aggregates in the Mo-Sai panels make a pleasing contrast to the dark raised letters and metal tube framing system. The Mo-Sai panels were factory cast into metal frames that were then welded to the building frame to create the effective mondrian pattern.

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* Mo-Sai precast concrete curtain walls were also used on San Francisco's largest office building – Bank of America Service Center.

Bank of America, Golden Gave-Hyde Branch, San Francisco,

Architect:
Alack L. Wilson & Associates
General Contractor:
Williams & Burrows, Inc.

All travel will be by air. The basic tour, including the Conference, will take three weeks. A two-week tour of Germany and the Scandanavian countries will be available as an extension.

Additional information may be had by writing to either of the tour leaders at 4748 Del Rio Road, Sacramento 22. Calif.

Architects for Colleges Selected by New Method

Architects for master-planning of California's new state college campuses and for design of new buildings for state colleges have been selected by the recently established Board of Trustees of the California State Colleges in line with its announced policy of using private firms as well as the State's Division of Architecture. Their selection was made after a committee of three architects had screened applications from California architects.

The three architects-William Stephen Allen, San Francisco; George Hasslein, San Luis Obispo; and Eugene Weston, Los Angeles-were appointed by the Trustees to develop procedures for selecting private architectural firms. All California-registered architects were sent a questionnaire and an invitation to submit qualifications for doing state college work. The committee then screened the replies and provided the Trustees with two panels of names-one for master planning, the other for individual projects. Approximately 45 names were submitted for the first, approximately 100 for the second.

Six Northern California firms have been assigned to as many campuses to act as consultants in their development. They are Falk and Booth, San Francisco, California Polytechnic College; Rockrise & Watson, San Francisco, Chico State: DeMars & Reay, Berkeley, Humboldt State: Dreyfuss & Blackford, Sacramento State; John Carl Warnecke & Associates, Sonoma State; and Reid Rockwell Banwell & Tarics, Stanislaus County State. The State Division of Architecture will consult on Alameda County State, San Francisco State, Fresno State and San Jose State.

Professor Hasslein has been appointed advisor to the Trustees and will assist them in future evaluations of applicants. These will be made on an annual basis, chairman Louis Heilbron announced.

Charles Luckman of Los Angeles is the architect member of the Trustees, and is chairman of the Trustees' committee on campus planning.

Building Designers Hold Eleventh Convention in S.F.

Some 400 members of the American Institute of Building Design and their guests met in San Francisco for their group's eleventh annual convention, and focused attention on their relationship to the new housing act, on new materials and their uses, and on their own professional affairs. They heard speakers from the FHA, California State Bureau of Professional and Vocational Standards, and from the home builders, and they recognized their own work in an awards program and an exhibition of the winning drawings.

Of particular interest to other groups in the building field were the sessions dealing with the A.I.B.D.'s own affairs. A membership classification of "Professional Building Designer" may be attained after six months' "Designer" membership in the organization, and certification by at least two members of a chapter for eligibility to take the P.B.D. examination. Eligibility requirements are a four year college course in architecture or architectural engineering, or two years' college plus 3 years work under "an active building designer, a civil or structural engineer, or a registered architect, or six years' experience on the job under similar supervision."

The examination has three parts: a sketch problem in design to cover the applicant's ability in architectural design, planning, structural feasibility, orientation, organization of subject matter and drafting and drawing; a written section covering provisions of the State housing act, building codes, construction details, materials, and mechanical and electrical equipment; and an oral section on administration, economics, practice and supervision, ethics and public relations between clients, subcontractors, contractors and material dealers.

New chairman of the A.I.B.D. Examining Board is Lowell Milligan of Chula Vista, Calif.

Vincent Dulcimer, director of the California Bureau of Professional and Vocational Standards, speaking to the convention, said that he had expressed the opinion to architects and legislators that, in the public interest, building designers should be licensed. (They are not now licensed in the State and strong opposition to this has been presented by the California Council, A.I.A., as well as other groups.)

New officers were elected during the three-day convention. They include Robert van Roekel, Riverside, president; Edward Hageman, San Francisco, first vice president; Virgil Cash, San Diego, second vice president; Edward Sedinger, Orange County, secretary; and Paul Davy, Long Beach, treasurer.

Plans Delayed for Salk's Research Lab

Sharply increased costs have delayed submission of plans to the San Diego City Council for the research laboratory to be built at Torrey Pines Mesa by Dr. Jonas Salk, developer of Salk polio vaccine. Originally, Dr. Salk expected the buildings would cost about \$3 million. Latest estimates indicate the project will cost between \$10 and \$12 million.

There is no problem in financing the research center's construction, according to Dr. Salk. The problem is that the financial backers have asked for detailed plans, and preparation of these will take time.

The center, now being designed by Philadelphia architect Louis Kahn, is to be on an ocean-front site near Torrey Pines Park. The site was contested some 18 months ago by a tax-payers suit. As a result, San Diegans were asked to vote on transferring the land to an individual. An affirmative vote got the project's planning under way.

Oregon Will Add Wing To its Famous Statehouse

The Capitol at Salem, Ore., designed by New York architect Francis Keally as the result of a national competition to select the architect, has grown too small for the state's needs and an addition is to be made to it. If the suggestion of the architect is carried through, the addition will be at the rear of the building, making an H-shaped plan for the building as a whole. This solution would provide a second entrance to the Capitol on State street.

more news on page 32-15







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AMERICAN CANCER SOCIETY

c/o your local post office.

Professional News

continued from page 32-12

Saarinen's Firm to Design Oakland Museum

Kevin Roche and John Dinkeloo, partners of the late Eero Saarinen, have been selected by the Mayor's Architectural Committee of Oakland, Calif., to design the new Oakland Museum Center, a complex of three buildings which will house the city's art, history and science collections. Reynolds and Chamberlain of Oakland will be Roche and Dinkeloo's local associates.

The Eastern firm was selected after the committee had personally interviewed its principals and nine other firms: Philip Johnson: Paul Rudolph: Walter Gropius (TAC): Jose Luis Sert; Minoru Yamasaki; Skidmore, Owings and Merrill; Richard Neutra: Campbell & Wong with Pietro Belluschi; and Mario Ciampi with Marcel Breuer and Pier Luigi Nervi. Before the committee had narrowed its list to these ten firms, some forty architectural firms had been invited to "consider the possibility" of designing the building: 32 had responded, and the ten semi-finalists were selected from among these. Principals of the ten firms made the trip to Oakland for the interview at their own expense.

In assembling the list of architectural firms to be considered, a member of the committee, Mrs. Fenner Fuller, did extensive research into the work of today's major firms, personally visiting both architects and buildings in a determined effort "to see that Oakland would have a really fine new Museum." Hardly a layman she is a former student of art under Léger and Kunivoshi-Mrs. Fuller made three trips to different sections of the country carefully appraising all that she saw. When the committee's selection of semi-finalists was completed, she personally persuaded the architects to come to Oakland to meet with the committee.

Funds for the \$6 million complex of buildings were voted at the city's election last Spring. The site permits complete latitude in developing the design of the complex as there are no nearby existing buildings which could influence the design.

more news on page 32-14

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Professional News continued from page 32-13

Golden Gateway Art Competition

An international competition for design of a major piece of sculpture for Sidney Walton Park in the Golden Gateway redevelopment project in downtown San Francisco is being conducted by Perini-San Francisco Associates and their architects Wurster, Bernardi & Emmons and DeMars & Reay. All artists are invited to submit brochures of their work by December 1 to the Art Advisory Committee, Perini-San Francisco Associates, 255 California Street, San Francisco 11.

Three to five semi-finalists will be chosen from among the initial submissions by a committee made up of the directors of three San Francisco art institutions, George Culler, Thomas Carr Howe and Gurdon Woods, and Mortimer Fleischhaker, member of the redevelopment associates and of the Board of Directors of the San Francisco Museum of Art. Names of semi-finalists will be announced January 1, 1962. Each of these invited semi-finalists will receive \$1000 to develop his design for the final stage.

The sculpture is to be placed in an area 30 ft in diameter in the park. No restrictions as to material or medium have been made by the competition sponsors, but it is suggested (although not required) that "the play of water" may be a part of the design.

Brochures for initial submission should be limited to no more than 10 photographs, 8 by 10 in. in size; and no more than two typewritten pages describing quality of work done and qualifications of the artist to handle a work of the size indicated by the competition.

Elections and Appointments

Jerome K. Nagel is the new president of the Colorado chapter, A.I.A., with Rodney S. Davis, vice president; T. J. Moore, secretary, James S. Johnson, treasurer, and Kenneth Fuller, Carl Kloverstrom and retiring president Lamar Kelsey, directors.

Charles T. Pearson of Tacoma has been elected president of the Washington State Council of Architects. Other officers are Richard H. Eddy, vice president; Aaron Freed, secretary-treasurer; and Lawrence Waldron, Wallace De-Neff and Robert T. Olson, directors.

Lutah Maria Riggs, F.A.I.A., of Santa Barbara is the first woman to serve on the California State Board of Architectural Examiners. Miss Riggs, a native of Toledo, Ohio, is a graduate of the University of California's School of Architecture. She is currently serving as a member of the Professional Advisory Council to the University's Department of Architecture and is on the jury for the competition for the design of a new mansion for the Governor of California.

William W. Wurster, dean of the University of California's College of Environmental Design, is a member of the jury for the competition for the design of the new Boston City Hall. Other jurors include architects Walter A. Netsch, Jr., Chicago; Pietro Belluschi, Cambridge; and Ralph Rapson, Minneapolis.

115 New Montgomery Street, San Francisco 5, Calif.

Waste Space

Betrayed for a Handful of Minutes

A year or so ago, the residents of Nevada City, Calif., voted whether or not to go along with the State's proposed route for a freeway between their town and Grass Valley, four miles away. The majority vote was for the highway.

The State might have gone ahead with the freeway route, anyway, as highway departments do. But if the vote had been otherwise, a different route might have been found for the highway, and something precious in the American heritage might have been preserved intact. For when the highway goes in, Nevada City will never be the same again. Future generations will never see the quiet beauty of the little hillside town, once so important a center for gold mining activities and now a living example of the small American town with a unique charm and a historic relevance all its own.

When the highway goes in, Nevada City will be what the highway wants it to be. Its charm will be sacrificed, and some of its history. To what? To Demon Time. To a few minutes at the beginning of the day and a few minutes at the end of the day. For in four miles it would be hard to save very many minutes even at the 65-mile speed limit. But the people who live in Grass Valley and work in Nevada City, and vice versa, covet even those few minutes and are willing to sell their birthrights for them-or to betray their own city to have them.

The present road between the two towns is only two lanes wide and it goes over hill and down dale-fine when all the traffic goes at the same good speed. But many log trucks use the road and if you have ever driven uphill behind a log truck you know what impatience is. The good folk of Grass Valley and Nevada City, in their daily switching of towns, know and say they are tired of it.

Doubtless they no longer see the beautiful countryside between towns, if they ever did. Doubtless the magnificent 100-year-old sequoia tree beside the road is only another obstruction to them, and the century-old assay building in town is only another old building.

The tree and the assay building will go when the new road comes in. Both are in its path, and both are irreplaceable ties to the past. The assay office, with its iron shutters over the old windows, should be treasured evidence of their town's reason-for-being, too precious to sacrifice. A hundred years is a long time for a tree or a building, and you do not get great height in a tree or patina in a building without many years.

When the highway comes in it will bisect the city, making as ugly a scar as the hated scar left these 80 years or more by hydraulic mining in the hills above the city. The scar is a great cut, and the townsfolk are not divided in their hatred of it. Yet they do not spare their town the ugliness of a similar scar.

Why? Because they can see the scar of the cut, and they cannot yet see what the highway will do. Their ears have heard the words that describe the new highway, but their eves have not yet seen the image of its structure. The tragedy is that even when the image becomes actuality, some may not see its ugliness. For they will be searching for something to do with the few minutes gained in the speedier trip by the new highway. E.K.T.









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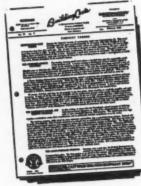


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Calendar of Western Events

- DECEMBER 11-15: Institute on Hospital Design and Construction, Statler-Hilton Hotel, Los Angeles
- DECEMBER 17: Closing, "Los Angeles, 1900 to Present," a panorama of the city's growth, Los Angeles County Museum, Exposition Park, Los Angeles
- JANUARY 7: Closing, "Art of San Francisco" (since 1871), San Francisco Museum of Art, War Memorial Building, Civic Center
- JANUARY 12: "The Role of the Region," a one-day institute on regional planning for the North-Central California area, with Lewis Mumford as featured speaker, University of California at Davis
- JANUARY 25-27: California Council, Civil Engineers and Land Surveyors tenth annual meeting, Fairmont Hotel, San Francisco
- JANUARY 25-27: California Streets and Highways, fourteenth annual conference, University of California at Los Angeles
- JANUARY 26-29: "Man and Civilization: Control of the Mind—II," symposium presented by the University of California School of Medicine and Department of Continuing Education in Medicine and Health Sciences, San Francisco
- APRIL 5-7: Pacific Southwest Council, A.S.C.E., convention, El Cortez Hotel, San Diego, Calif.
- APRIL 21: Opening, Century 21 international exposition, Seattle

WESTERN SECTION

Index To Advertising

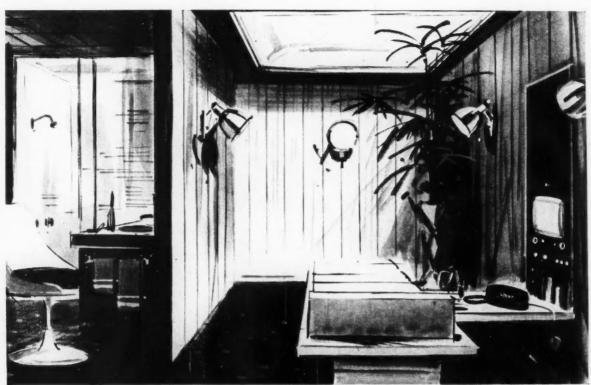
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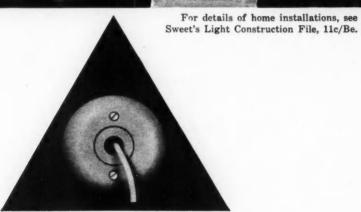
a Architectural File (green) ic Industrial Construction (blue) lc Light Construction File (yellow)

Page numbers of manufacturers' advertising elsewhere in this issue shown in italics

	American Cancer Society	32-13
	Boeckh & Associates, E. H	32-16
A-LC	Miller Sliding Glass Door Co., Inc	32-15
A-IC-LC	Mississippi Glass Company 32-9, 22	22-223
A	Mo-Sai Institute, Inc	32-11
	National Rain Bird Sales &	
	Engineering Corp	32-15
	Soulé Steel Company	32-7
	Sta-Crete, Inc.	32-14
	Stewart & Stevenson Services, Inc	32-13
	Western Porcelain Enamel Council	32-14

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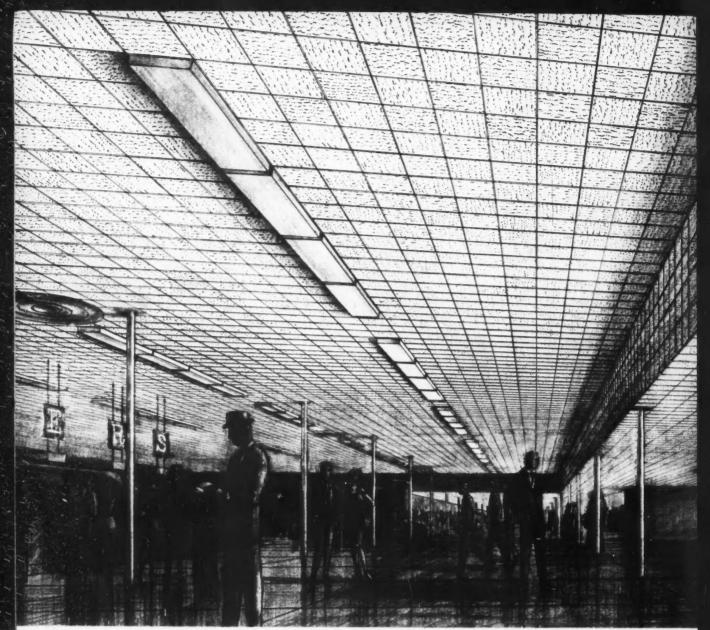




for built-in telephone outlets with wiring concealed. Telephone planning provides for a family's future needs, protects the interior beauty of homes, adds to resale value. Bell Telephone System

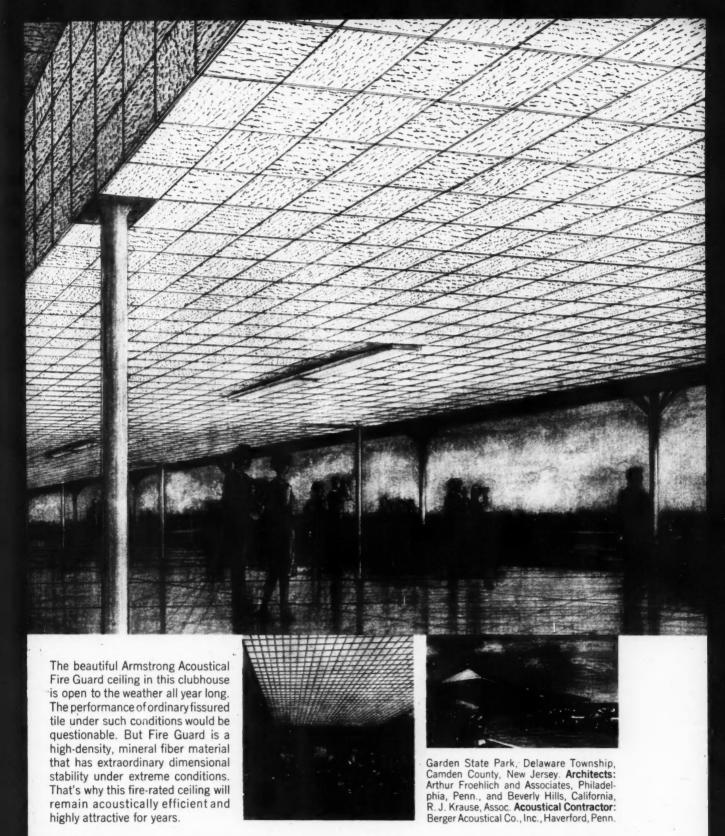


Call your local Bell Telephone Business Office for help in telephone-planning your homes.



Second floor of new clubhouse, Garden State Park Race Track. Renderings by Ara Derderian

Here it's exposed to the elements but this Armstrong Acoustical Fire Guard ceiling withstands outdoor humidity, heat and cold



TECHNICAL DATA: u. L. RATED: Armstrong Acoustical Fire Guard offers one- to four-hour rated fire protection for structural components. **SAVES MONEY, CONSTRUCTION TIME:** Up to 30¢ per sq. ft. by eliminating intermediate fire protection; often earns lower insurance rates; up to two months' time through dry installation. **SUSPENSION SYSTEMS:** For tile: TDR, Zee; for new lay-in units (24" x 24" x 5/8" and 24" x 48" x 5/8"): exposed Fire Guard grid system. **CHOICE OF DESIGNS:** Fissured, Classic, Full Random. For full information, call your Acoustical Contractor, your Armstrong District Office, or write Armstrong Cork Co., New Code Street, Lancaster, Pa.



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The Executive Kitchen is paralleling the rising popularity of the execu-

tive dining room for management personnel. Geneva cabinets and casework have been selected for many of these installations. Wider cabinet selection . . . Geneva's exclusive and superior Impasto textured finish in many decorator colors . . . fine cabinet construction . . . ease of installation and maintenance . . . and Geneva's functional styling and quality features—are the reasons why. A Geneva specialist will be happy to assist you on design and layout problems. Or, if you prefer, write for literature.

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Ithaca Senior High School, Ithaca, N. Y. Architects: Perkins & Will, White Plains, N. Y., & Chicago, Ill. Two-story classroom buildings are glazed with Parallel-O-Grey® Plate Glass. Enclosed connecting corridor features clear Parallel-O-Plate®.

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Open World is a Teaching Aid

Education is enlightenment. And in the new high school in Ithaca, N. Y., that concept is put into practice. For this school is a pace-setter in the trend toward a greater sense of educational freedom and a more meaningful school architecture.

Built on a campus plan, this school is a complex of nine buildings, connected by open and closed corridors. It's a place of wide walks, open courts and expansive walls of glass—reflecting the philosophy Ithaca educators wanted built into it.

Entrance to the school campus. Auditorium at left, two-story classroom building at right, single-story Administration Building in center.





View from second-floor corridor shows long wall of Parallel-O-Plate Glass in connecting single-story wings.

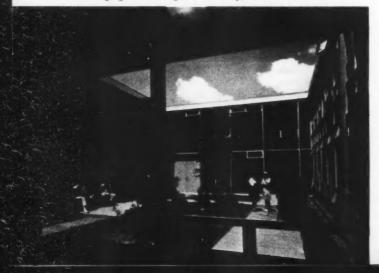
Supervising Principal Frank R. Bliss explains it this way. "We want to give our students all the freedom we possibly can, both in their actions and in the atmosphere of their surroundings. Our students come and go—just so they meet their scheduled classes and activities. You won't see any corridor guards. And you won't see teachers herding students from one place to another.



Supervising Principal FRANK R. BLISS "Architecture complements the educational concept."

"We feel, too, that school architecture should complement and encourage this educational concept. And we believe ours does—in the openness of its campus

Students enjoy open patio in center of classroom building during nonscheduled periods. Natural light pours into inside corridors through glare-reducing *Parallel-O-Grey* Plate Glass.



arrangement, and in the design of the buildings themselves, with their expanses of glass which encompass the student without 'imprisoning' him from the world outside."

Lawrence Bach, Head of the Science Department, is dedicated to putting that educational philosophy into action at the classroom level. He speaks for the entire school faculty when he says, "We couldn't be happier with our school. It's a pleasure to teach here."

And the kind of student freedom you allow here hasn't caused any attendance problems or classroom laxity?

"If anything, attendance is better than ever. Students *like* coming to school here. They are more receptive to learning, and more responsible in their work."

As a teacher, do you favor this extensive use of glass?

"I do, indeed. Especially as a science teacher. I teach the phenomena of life—and there life is, going on right outside these big windows. We see in action what we study in the classroom. The growth of plants. The flight of birds. The antics of squirrels. The real world becomes part of our classroom world."

With all this glass, what about glare?

"These windows are grey glass which subdues glare from outside. Yet there's plenty of natural daylight for all ordinary classroom work. The only time we use artificial light is for close work with microscopes."



Does the increase in natural light interfere with visual aids?

"That's no problem. Venetian blinds or very light shades are all that's needed. In fact, some of the newer visual-aids equipment is strong enough so that no shades of any kind are required."



Head of Science Department LAWRENCE BACH "Life in action outside big windows."

But a school is created for the benefit of its students. And the proof of its success lies with those students. Ann Mosher, Vice President of the Student Council, speaks for the student body. "We love it. We feel it's a better place in which to learn. It makes us want to come here. Gives us a desire to do our best. Maybe it's a kind of challenge to us to be worthy of it.



Vice President of Student Council ANN MOSHER "A challenge to do our best."

"And we like the 'college-campus' feeling—and I think this campus environment will help those of us who go on to college to adjust more readily to that new life. I guess, to sum it all up—it makes us feel more grown up. We appreciate that, and try to live up to it."

Making a school function properly is not just a desire on the part of administration, faculty and students. There are the practical aspects of maintaining buildings and grounds, of providing all the physical facilities to keep the school operating efficiently.



Two walls of this interior conference room in the Student Activities wing are *Parallel-O-Plate* Glass to separate activities, yet maintain a light and open atmosphere.

Plant Manager Rollin Hood admits, "It's a big job. And it's going to get bigger. The key to the whole design of this school is 'flexibility'. So it can grow. Right now, it can handle 1600 students in grades 10, 11 and 12, and it's planned for future expansion up to 1000 more. Also, its facilities serve our entire community, evenings and weekends the year 'round.

"Maintenance of the nine buildings and campus is a big job. But we do it with seven men plus student help. In fact, my student crew cleans the entire school every day in just one hour. It's a system I'm kind of proud of. And we even save money with it—saved \$22,000 in maintenance costs last year on just one building!"

Does this kind of building create heating difficulties?

"The campus arrangement of buildings puts a little heavier load on heating. More outside wall space open to the weather. But other advantages more than make up for that."

Laboratories, shops and workrooms are separated from twin classroom buildings by a broad, central court.





Plant Manager ROLLIN HOOD "Maintenance plan to be proud of."

How about keeping heat out in summer?

"Our twin two-story classroom buildings have *Parallel-O-Grey* Plate Glass all around. And that seems to help control heat. At least, we've had no complaints from anybody about overheating—except in a few rooms in the single-story buildings with regular glass. But we are already planning to replace some of this glass with *Parallel-O-Grey*."

Does a greater amount of glass help reduce lighting costs?

"Many of our teachers and students, coming from conventional buildings, still have the habit of flicking on classroom lights as they enter, even though they don't need them. Once we break that old-fashioned habit, I expect to see a cut in lighting costs."

COST DATA

Area-191,180 square feet	
Unit cost per square foot (includes mechanical equipment with capacity to accommodate planned future expansion)	\$ 18.60
Building construction cost	\$3,556,689
Fixed equipment	188,597
Site development (drives, walks, exterior lighting, landscaping)	211,445
Athletic field development	37,800
Land, movable equipment, fees, contingencies	505,469
Total	\$4,500,000

Impressive to look at, a pleasure to teach in, exciting to learn in—Ithaca High School is a worthy accomplishment for its entire community. And perhaps the final word should come from someone of that community who is outside the immediate environment of the school.

As we drove away from the school, our taxi driver—Ithaca citizen and taxpayer—said, "I bet students really want to go to that school. Probably learn more, too. You know, you really don't mind paying for a school like that!"

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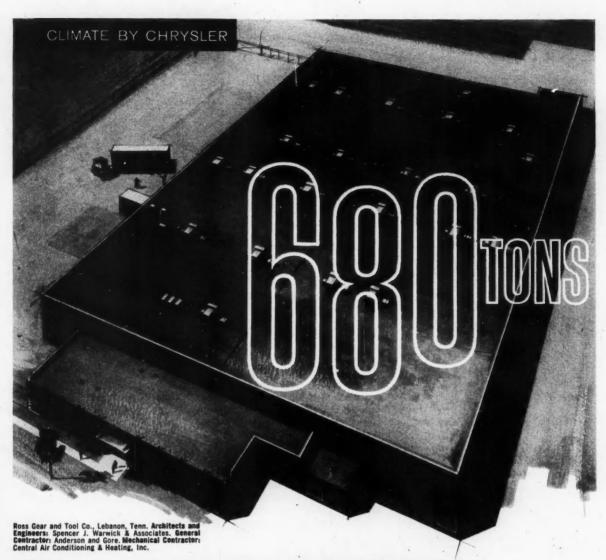
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the roof of this new plant for Ross Gear and Tool Company are 22 Chrysler 30-ton packaged air conditioning units. Together with two Chrysler packaged liquid chillers and four split-system units, they provide the cooling (785 tons of it!) for almost five acres of manufacturing and office space.

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Required Reading



Montgomery Schuyler
—from American Architecture and Other Writings

Schuyler Collected

AMERICAN ARCHITECTURE AND OTHER WRITINGS. By Montgomery Schuyler; edited by William H. Jordy and Ralph Coe. The Harvard University Press, Cambridge 38, Mass. 664 pp., illus. 2 vols., \$12.50 the set.

Starting with, as a base, Schuyler's 1892 volume American Architecture, the editors have added many articles which appeared in both architectural and general periodicals. Since Schuyler is so often quoted, and since access to his writings has till now meant a search for books and magazines 50 and 60 years old, this collection is welcome both as general reference and general reading.

Schuyler, the editors remark in their lengthy introduction, has long been required to bear a burden of perspicacity which he is not fully equipped to support, and which, it might be added, it is unfair to demand. He was, they go on, no more infallible than his times permitted. His ideas had been formulated by a study of Ruskin, Violet-le-Duc and an obscure but highly interesting Bohemian-American architect, Leopold Eidlitz. This study led to his acceptance of 19th century architectural standards which the editors enumerate as individualism, tangibility and articulation-valid standards in discussing the Gothic revival, but not particularly germane to the problems of the skeleton-frame skyscraper. The editors contend that Schuyler's aherence to these basics made him fail to appreciate the esthetic possibilities of the new structures. In truth, he did often seem puzzled that buildings which so satisfactorily fulfilled his rational requirements should disappoint his eyes; he once compared his reaction to a Sullivan skyscraper as that of the "East Indian to his idol: we know that he is ugly but we feel that he is great."

Still, he struggled against his undoubted prejudices, and if he did not see the worth of the new architecture, he knew it, and said so often and feelingly and in print (voluminously in Architectural Record, often in magazines like Harper's and Scribner's). And if he occasionally seems wistful that architecture did not develop as he imagined it might as a young man, neither does he seem, as one reads him, to regret it much.

In addition to some of his articles on skyscrapers, the editors have included Schuyler on Victorian Gothic, on the "Richardsonian interlude," on the Beaux Arts, on Sullivan and Wright, and on bridges—this last group giving insight into Schuyler's interested in pure engineering, but quite possibly included for its sheer charm.

As for the pertinence of Schuyler's opinions, they would seem to have little today, as he discusses an architectural fight which was long and bitter, and is now quite over. In their introduction, the editors suggest that his views may not lack pertinence: "Since World War II, modern architecture has come back to the ideals of individuality, tangibility and articulation, and to a renewed interest in history, which reintroduces the dilemmas of creative eclecticism as well. Today Schuyler's criticism assumes new relevance. . . . And so does its underlying premise: 'It is more feasible to tame exuberances than to create a soul under the ribs of death.' Could it be that the critic for a lost cause will become the prophet for a new one?"

There is another reason for an edition of Schuyler's writing—it makes wonderful reading. The prolixities and allusions of his old-fashioned style are not difficult and are anything but boring. And he exhibits what has been called the "biliousness" of good criticism, informing his words with considerable force and conviction even at this distance in time

more books on page 48

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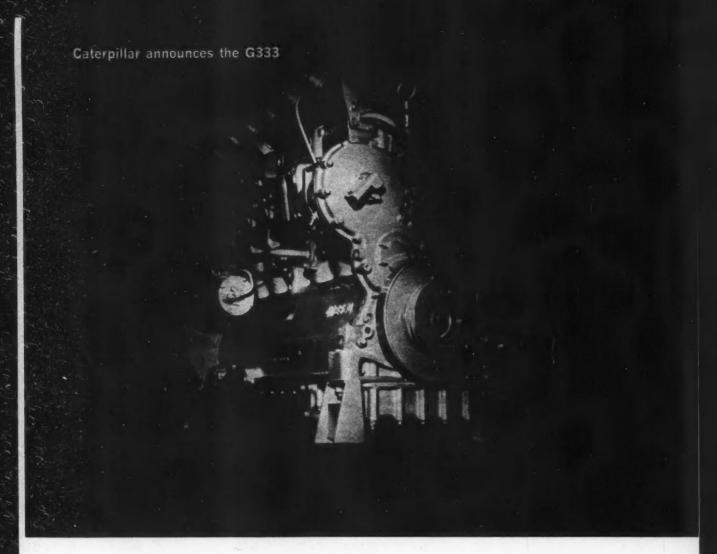
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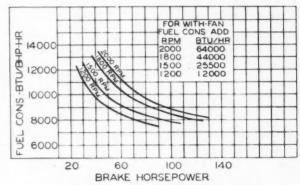
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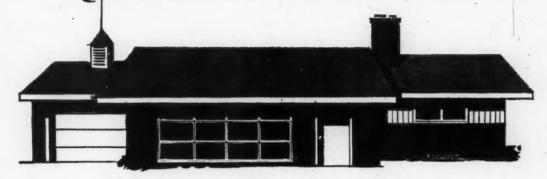
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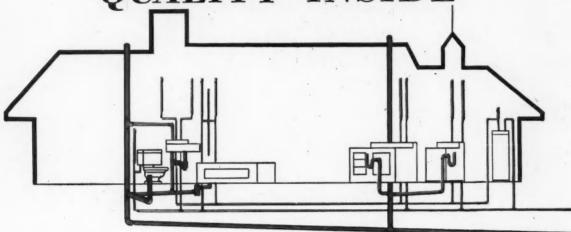
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Required Reading

continued from page 42

A Sculptor's Architecture

THE ARCHITECTURE OF MICHELANGE-LO. By James S. Ackerman. The Viking Press, Inc., 625 Madison Ave., New York 22. Vol. I, 156 pp., illus.; Vol. II, 155 pp. (catalog). \$12.50 each.

Michelangelo appears to be very much with us these days. Not that he hasn't always been, certainly, but in recent months we have seen books on his painting, on his sculpture, on his theories and on his life. What this impressive resurgence of research signifies the reviewer cannot guess, but it is producing good fruit—in this case, an excellent history of Michelangelo's architecture.

Mr. Ackerman discusses the "why" of Michelangelo's architecture in an introduction covering his theories, as far as these can be determined. Very little evidence exists of these: only, in fact, a fragment of a letter written by him, and what can be deduced from the reactions of his contemporaries. His approach, as interpreted here, was organic-not the rather botanical organic approach of the 19th century, nor the Renaissance "humanist" approach of divine proportions. It depended on an ultimately abstract theory of human anatomy and, particularly, movement.

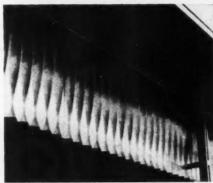
The "how" of his buildings is treated in individual chapters on each of them. Michelangelo's buildings were never finished until the last stone was in place. They started with dynamic drawings taking next to no consideration of structure, and proceeded through many steps of readjustment to structural versus visual facts until completion. It is quite a feat, under these circumstances, to reconstruct the progress of any of them. Mr. Ackerman has accomplished it.

He has, indeed, accomplished it twice. Once for the general reader, in Volume I, and again for the serious scholar, in Volume II—a catalog of the buildings described by original and secondary sources. The volumes are sold separately.

continued on page 52

NEWS

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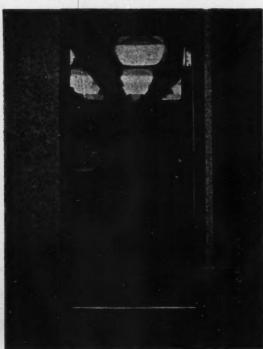
Panels of J-M Corrugated Transite®—slit, and backed with mineral wool pads—provide effective sound control and an attractive solution which follows the wall contours of this school auditorium.

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Associated Architects: Graham, Anderson, Probst & White, Inc., and Raymond S. Kastendieck & Associates



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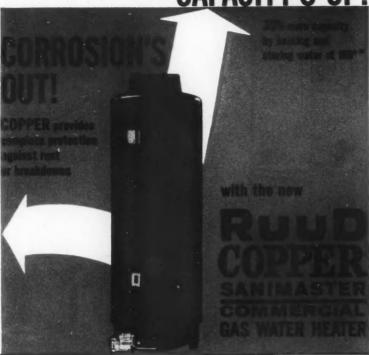
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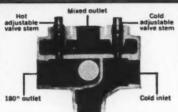


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Required Reading

continued from page 48

Reports on Research in Europe

BUILDING RESEARCH AND DOCUMENTATION. Edited by the International Council for Building Research, Studies and Documentations-CIB. Elsevier Publishing Company, Amsterdam; dist. in U.S. by D. Van Nostrand Company, Inc., 120 Alexander St., Princeton, N.J. 500 pp., illus. \$30.

The rather stiff price attached to it may unfortunately discourage many architects from studying this collection of papers read at the 1959 Rotterdam congress of the International Council for Building. Price notwithstanding, it is required reading for anyone involved or interested in building research.

The papers are grouped into a number of categories: mass housing, structural design (for both concrete and steel), dimensioning, flat roof construction, industrialization of building, et al. Americans may find some of the reports suggestive—as in the sections on concrete—and other areas inapplicable or ignored—there is virtually no treatment of mechanical systems, for instance.

But the chief worth of the book should be to shake American complacency toward both building and research by facing it with European sophistication of approach, sense of order and, especially, ability to perceive the total picture. R.E.F.

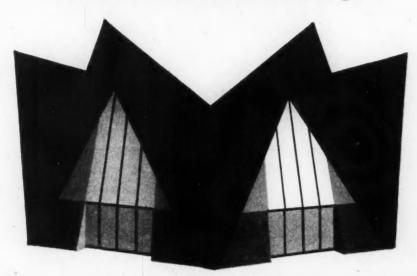
Structural Efficiency Explained

SURFACE STRUCTURES IN BUILDING. By Fred Angerer. Reinheld Publishing Corp., 430 Park Ave., New York 22. 142 pp., illus. \$4.50, paperbound.

The surface structures of the title are such 20th century constructions as folded plates, thin shells and shear walls. Mr. Angerer, with comprehensible text and nice drawings, has described, in basic terms, the structural behavior of these systems, and has gone on to indicate situations in which one or another may be appropriately applied, and ways of achieving architectural expression and structural "readability." Properly read, he might succeed in detering some whimsical or merely frivolous uses of these methods. R.E.F.



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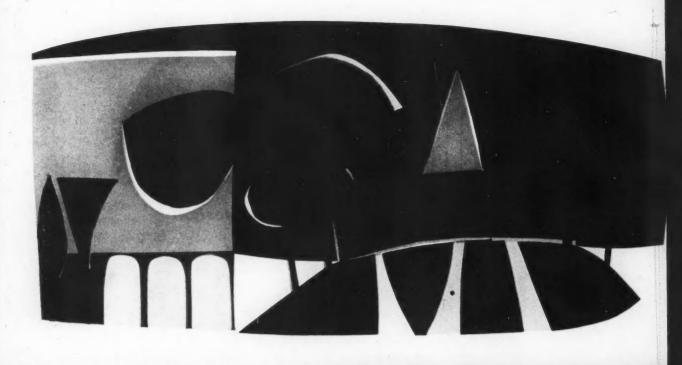


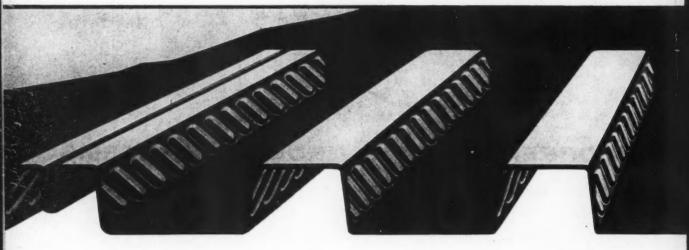
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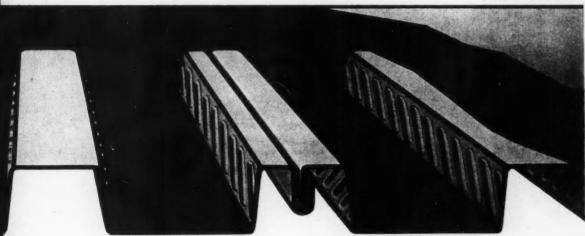
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For more information, ask an Inland sales engineer — or write or call the nearest Inland office.

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Lightweight Jamolite® plastic door offers easy, one-hand operation in hospital kitchen.

Lightweight, attractive **JAMOLITE**® doors speed service, improve appearance in hospital installation



JAMOLITE doors are available in white and four colors to harmonize with any interior.

BRIGHT, CLEAN SURFACES of Jamolite allplastic doors make these lightweight doors the ideal choice for hospital service. At the Washington County Hospital, Hagerstown, Maryland, five Jamolite doors are demonstrating these advantages over heavy, thick doors of other materials:

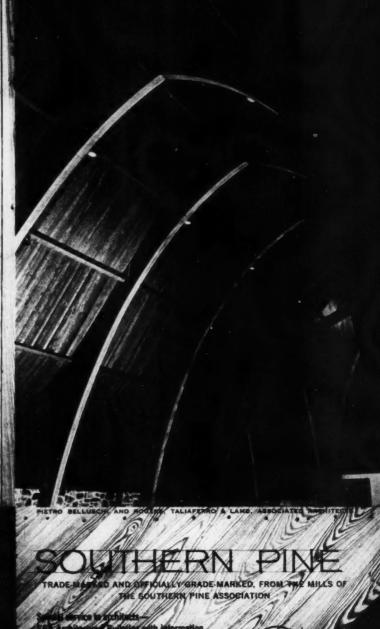
better appearance
easier cleaning
new light weight
easier opening and closing
superior insulating
easy installation

Get complete details on these flush-fitting plastic doors by writing to Jamison Cold Storage Door Co., Hagerstown, Md.



BEHOLD, THE RENAISSANCE OF WOOD!

Architects know that ood's strength...versatility...beauty are all available in Southern Pine





Niagara-Mohawk Power Corporation, Huntley Station, Buffalo, New York.

Power company selects Abolite...

Gets easy-on-the-eyes lighting, and holds the line on costs



INSTALLATION DATA

Abolite HMFAU-2400 Alzak aluminum uplight fixtures with 1000 watt color-improved mercury lamps. Ceiling height 65′, mounting height 55′, spacing 18′ x 24′. Average maintained footcandle level: 30. Electrical Contractor:

Buffalo Electric Co.

Engineers at this power plant wanted high bay lighting that combined comfort with low installation and maintenance costs. They got it by installing Abolite fixtures equipped with 1000 watt color-improved mercury lamps.

Though these fixtures are mounted 55 feet high, they provide comfortable, glareless 30 footcandle average light throughout the building. Light directed upward through the fixtures' open tops washes out dark ceiling shadows. 35° shielding of lamp virtually eliminates glare.

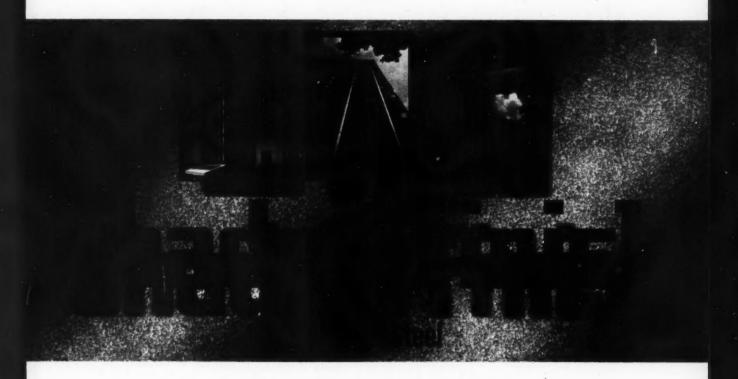
Most important, this system costs less to buy and maintain than a comparable fluorescent system because fewer fixtures are needed. Maintenance costs are less, too, because air circulating through Abolite's open-top fixtures sweeps them clean of dulling dust.

For high bay lighting that combines both comfort and economy, specify Abolite fixtures. The complete line includes RLM-approved Alzak aluminum and porcelain enamel fixtures for use with all kinds of mercury and incandescent lamps. Write for more information.



THE JONES METAL PRODUCTS COMPANY
West Lafayette, Ohio

Here are
three examples
of
Allegheny Ludlum's
answer
to the
"Oil-Canning"
Problem...



Here's something new for architects.

If your problems in natural finish metal curtain wall construction have been "too bright," "too reflective" and subject to "oil-canning," here's a solution.

For stainless steel curtain walls,

Allegheny Ludlum now announces an answer to these problems . . . the new A-L Shadow Finish stainless steel.

In this finish, the surface is matte in appearance, and pleasantly sparkles from minute crystal-like facets. Here is a new tool for architects to use in expressing color and texture.



A-L's Shadow Finish brings a soft and contrasting feel to the Niagara Power structures

Two huge intake gate structures that tower nearly 100 feet in the air on the Niagara River illustrate an unusual use of Allegheny Ludlum Shadow Finish stainless steel.

The gate structures are 55 feet wide, and harmonize with the nearby dam structure. On the front and back, panels form modules and are in two sections, each 4 feet by 11 feet. Four modules run from ground to roof. They are interrupted by vertical colored flutes. The faces form an interesting pattern of contrast in shade and shadow while the ends, without patterns, contribute to the structure's monolithic look.

Stainless steel, with its inherent strength and stability, was a natural for the corrosive atmosphere present.

When the natural and unusual beauty of the structure is combined with the new Shadow Finish by Allegheny Ludlum, it makes these two structures international landmarks for miles around.

Power Authority of the State of New York Niagara Power Project

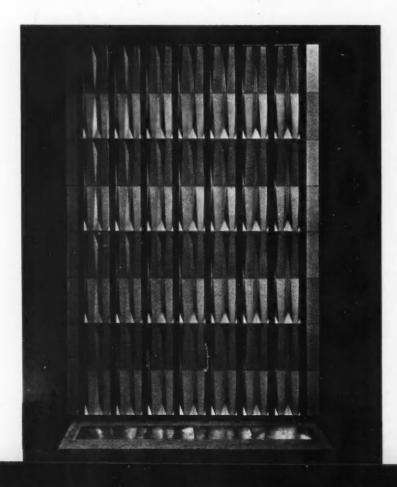
Robert Moses, Chairman William S. Chapin, General Manager and Chief Engineer

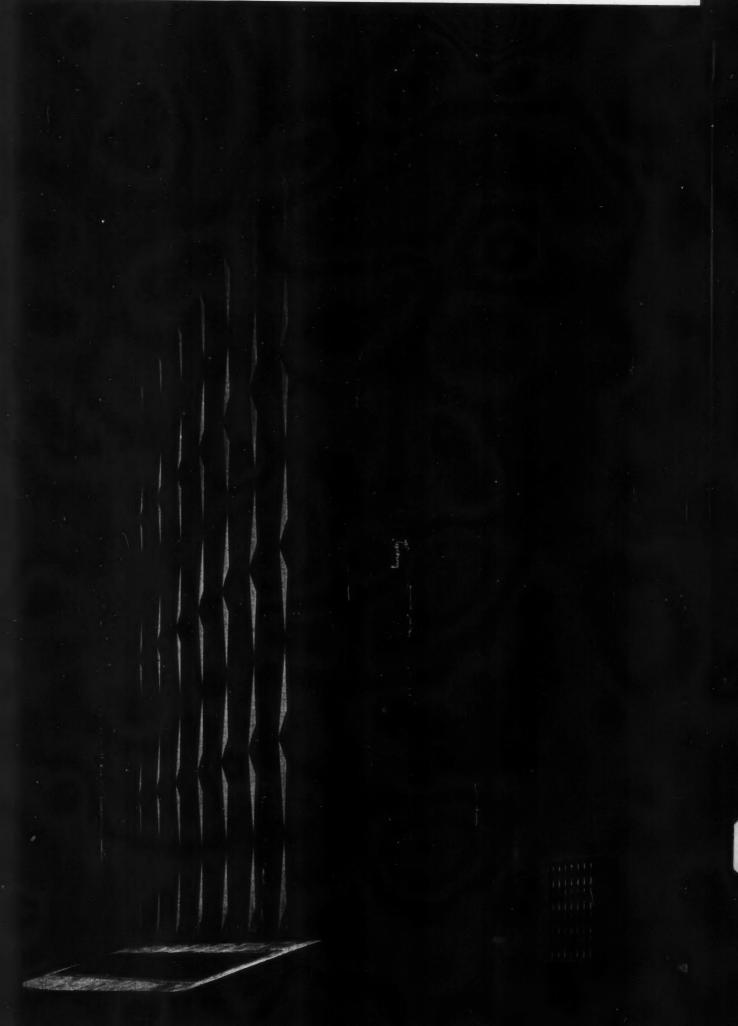
Engineers for the Authority

Uhl, Hall and Rich Boston, Massachusetts

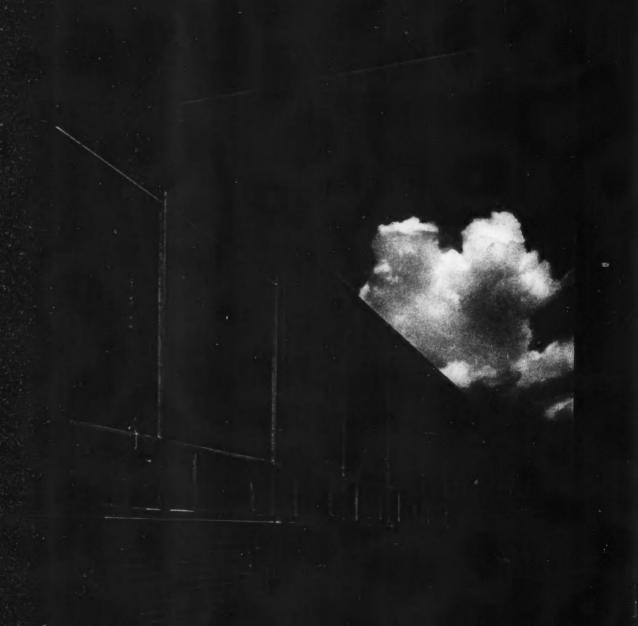
Fabricators of Stainless Steel Panels

General Bronze Corporation Garden City, New York United States Plywood Corporation New York, New York





Direct comparison results in A-L's NEW Shadow Finish on Fox Chapel School column covers



In this Fox Chapel Area High School near Pittsburgh, the architects decided to emphasize the 13-foot structural column modules. Stainless steel was chosen to enrich their basic theme of glass and earthy, red-toned face brick.

To minimize the costs, so important in schools, the stainless steel had to be light gauge. It called for creative, intelligent designing.

After checking small hand samples of Allegheny Ludlum's new Shadow Finish, the architects authorized the making of mockups of two identical column facings, each designed with .031 inch thick stainless steel. Each facing was 10 inches wide, bowed outward ¼ of an inch.

As illustrated in the lower picture, the right hand column facing was a standard high lustre polished Number 4 Finish. The left hand column facing used Allegheny Ludlum's new Shadow Finish. The new finish was much less expensive, too.

Obviously, this diffused metallic look of the Shadow Finish enhanced their theme of building design and earned its place as the choice for the final structure. Stainless steel was also used in hardware, fascia, and other places where hard wear was expected.

Architects

Hunter, Campbell and Rea, Altoona, Pennsylvania

General Contractor

Youngdahl-Crump-Psaty, Inc. Pittsburgh, Pennsylvania

Stainless Steel Fabricators

Limbach Company, Pittsburgh, Pennsylvania Extrudite Metal Company, Pittsburgh, Pennsylvania



Two-foot wide column covers on United Engineering Center Building show off A-L's NEW Shadow Finish

The new United Engineering Center in New York City is the largest illustration of the application of

Allegheny Ludlum's new Shadow Finish. It has twenty-one stories, including basement, and two mechanical floors at the top.

On this 12 million dollar building, the five columns on the south and four on the north rising from the ground level to the top of the 300-foot structure are covered in 14-gauge Type 302 stainless steel with the new Shadow Finish.

These covers are produced in 12½-foot sections, and are designed in halves. Two sections join to form one large "M"-shaped column measuring two feet wide. In column covers as wide as these, "oil-canning" and highly reflective surfaces would be jarring.

Stainless steel, Shadow Finish, column covers enhance the aesthetic feeling of the building, and carry out the architect's requirement for strength and stability.

Architects

Shreve, Lamb and Harmon Associates New York, New York

General Contractor

Turner Construction Company, New York, New York

Stainless Steel Fabricator

Moynahan Bronze Company, Flat Rock, Michigan





NEW...for architects from Allegheny Ludlum

Shadow Finish—Allegheny Ludlum's new finish is a rolled product with the finish obtained through careful chemical treatment and specially prepared skin pass rolls.* It results in a matte finish which breaks up light reflections, and sparkles from minute crystal-like facets. This finish, in combination with good designing practice, minimizes reflection and distortion, often referred to as "oil-canning." It allows the use of light gauge stainless.

It is considerably less expensive than the conventionally used Number 4 Finish. A high degree of uniformity is maintained by careful quality control procedures, checked by glossmeter reading. Excellent color match results.

Plastic Protective Sheets—Another new development by A-L is a plastic film coating for protection during handling and fabrication. It remains elastic during storage, and extremely flexible as an aid in fabrication; it can be sheared, slit, and blanked. It strips off easily; minimizes final cleaning. The protective film is mill applied and has to be specially specified. It is available on stainless steel in gauges from .018 to .050 inches and in widths up to 42 inches. It is less expensive than the usual adhesive paper and is designed for the same purpose.

In Research—Fingerprint-Resistant Surface Treatment —Still in the research laboratory but available for special applications is a new transparent inorganic treatment applied at the mill to stainless steel sheets.* It eliminates fingerprinting or any other normal marking. It fabricates without problems, and resists the usual dirt present during construction, such as cement flash, plaster splash, organic solvents, solder flux, and caulking compounds.

Technical Service—The Allegheny Ludlum Architectural Development Group is at your service on any of these new developments, or any other stainless steel problem. More information can be obtained through any District Office. Let A-L's trained stainless steel specialists help you on your problem. Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

*Patents applied for



ALLEGHENY LUDLUM STEEL CORPORATION



General Headquarters: Oliver Building, Pittsburgh 22, Pa.

EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT



LAKEVIEW MEMORIAL HOSPITAL, Stillwater, Minn. ARCHITECTS: Ellerbe & Company. CONTRACTORS: C. H. Peterson Construction Co.

Mechanized dish handling simplifies food service at new "cloverleaf" hospital

The first general acute hospital in the United States to use the new "cloverleaf" design, Lakeview Memorial Hospital at Stillwater, Minn., is a marvel of planned functional efficiency.

Three circular wings extend from a rectangular center section. Rooms with 67 beds are at the outer edges of the circles with nurses stations in the centers. Nurses never lose visual contact with patients... are never more than 20 feet from them.

Food service, too, is ultramodern. A STANDARD CONVEYOR Traylift (right) carries trays of food from kitchen to serving areas, carries soiled dishes down again—swiftly, silently and safely. In the ground floor kitchen a STANDARD CONVEYOR Traybelt (below) simplifies make up of individual food trays and speeds them to the Traylift.

As the modern way to efficient food service, STANDARD CONVEYOR mechanized dish handling systems offer many advantages.

By providing a fast and economical way to transport trays, they let you locate kitchen and dish washing areas remote from dining areas. They allow planning for efficient service with reduced personnel requirements. They provide faster food service with reduced dish breakage. And best of all, they pay for themselves fast out of operational savings.



Standard Traylift makes quick work of carrying soiled dishes down from first-floor serving area (abové) to ground-floor dishwashing room (below). Reversible model also allows up-service for food trays from kitchen to patient floor. Other models featuring simultaneous up-and-down service, push-button selection for serving more than two floors, and completely automatic loading and unloading are also available.





Standard Traybelt speeds make up of food trays, carries them safely to the Traylift. Many other models are available to meet a wide variety of food service requirements.

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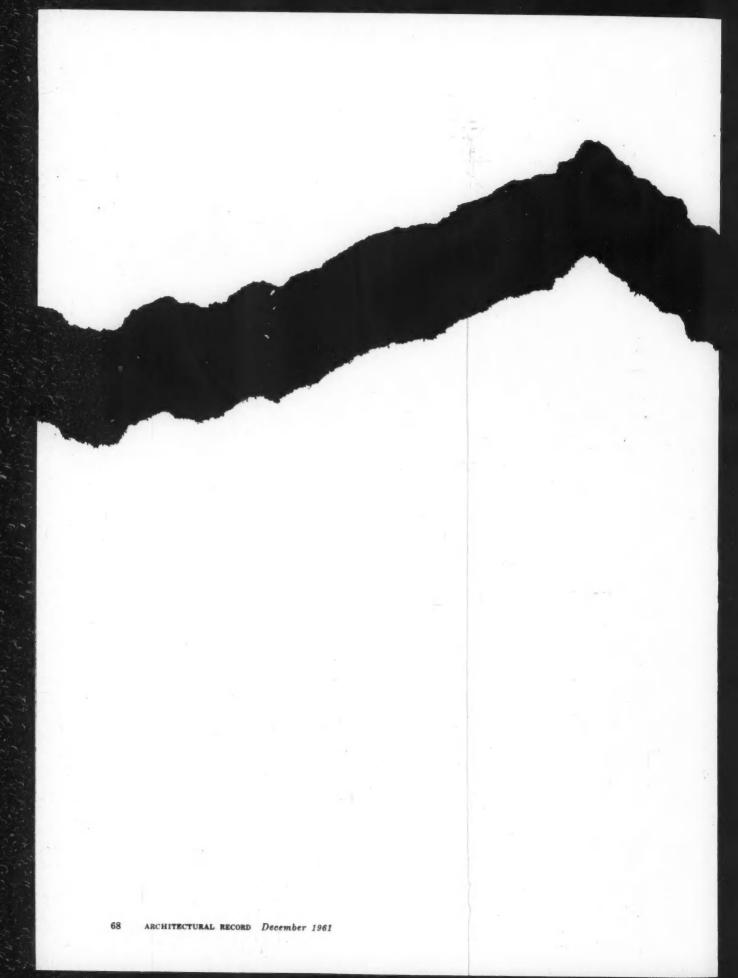


Standard Conveyor

312-M Second St., North St. Paul 9, Minn.

If you have a project pending where you'd like to give your client the benefits of streamlined dish and tray handling, Bulletin 120 can help you to determine models needed and general structural requirements. Write today for your free copy. Or, if you prefer, simply clip this ad to your business letterhead and mail it . . . Your AIA File 35-C-13 is not complete without it!





Control concrete temperature cracks

Shrinkage and temperature stresses that lead to damaging cracks can be controlled with USS American Welded Wire Fabric. Closely spaced wires, with a minimum tensile strength of 75,000 psi, distribute the required area of steel evenly throughout the entire concrete slab. And electrically welded intersections anchor the steel in both directions.

Prevents damaging cracks. The yield strength is figured at 80% of the ultimate strength or 60,000 psi. Thus, 50% greater design stress is permissible than with most hot rolled reinforcing steels. The result is that USS American Welded Wire Fabric will be effective in preventing damaging cracks in a concrete structure at a much higher stress. Spacing of each reinforcing member is guaranteed to a tolerance of $\pm \frac{1}{4}$ " and cold drawn to a tolerance of .003".

Welded Wire Fabric eliminates the costly, tedious tying of bars and assures the steel being positioned exactly where needed. Convenient rolls or flat sheets sized to your specifications save time and reduce costs.

All concrete slabs on fills or grade should be reinforced with welded wire fabric . . . it adds 30% to the strength of a plain concrete slab. Thus, the cost of a reinforced concrete slab is much less than an unreinforced slab of equal strength. For the full story, call or write American Steel and Wire, Dept. 1292, Rockefeller Bldg., Cleveland 13, Ohio. USS and American are registered trademarks.

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American Steel and Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco Tennessee Coal and Iron Division, Fairfield, Alabama United States Steel Export Company



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Added to our fast growing list of hospital installations is this modern Sacred Heart Hospital, Chester, Penna. They will enjoy the best in vertical transportation equipment for many years to come. When you combine "Honest" Montgomery equipment with Montgomery "Preventive Maintenance Service," you have a package that is unbeatable. Montgomery offers the latest in Elevator and Escalator systems. There is one that is best suited to your next project. Investigate NOW. Our branches and representatives are listed in Sweet's and the yellow pages of your phone directory.



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Testing a Leviton switch subjects it to the equivalent of 20 years of heavy usage. It goes on and off 30,100 times under 4 types of loads. Periodic destructive tests go up to 3,000,000 cycles to check reliability. 17 separate laboratory tests evaluate both the finished switch and all its components. Leviton maintains one of the largest wiring device testing labs in the country to bring you the safest possible

switch at the lowest possible price.

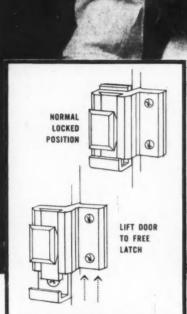


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EMERGENCY





(Pat. Pendi

Weis Lift-Free Latch unlocks by merely lifting door upward



Lift the door...the latch is free...the door unlocked. No delay in reaching an emergency situation—fast! This exclusive Weis feature is especially important in hospital, nursing home, school and other institutional locations. It's a handsome, simple, cleanly designed latch, described in the new Weis Toilet Compartment catalog—write for copy.



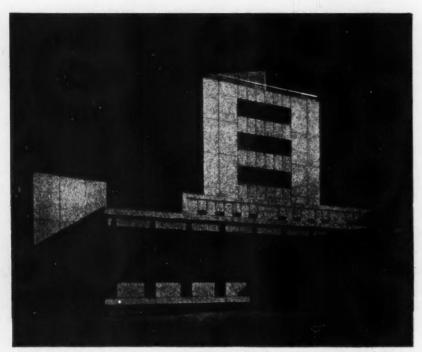
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Wels belongs where toilet compartments really take a beating

HENRY WEIS MFG. CO., ELKHART, INDIANA

ASHTON, EVANS & BRAZIER

chose precast white concrete curtain-wall panels for the striking Salt Lake City Airport Terminal. Made with white onyx aggregate and ATLAS WHITE portland cement, the units add an eye-catching texture to the beauty of the



SALT LAKE CITY AIRPORT TERMINAL BUILDING, SALT LAKE CITY, UTAH Architects: Ashton, Evans & Brazier, Salt Lake City. Contractor: Christiansen Brothers Inc., Salt Lake City. Concrete panels: "Mo-Sai" by Otto Buehner & Co., Salt Lake City.

building. The panels, as large as 13' x 28', were bolted and welded ed to structural steel on the main building, and applied to concrete block on the concourses. Styrofoam insulation was glued to the recessed back of

the main building panels, then interior plaster was applied.

Creative architects are discovering the infinite variety of design opportunities possible with precast concrete. Any size, shape, color or texture can be specified, and installation is fast, simple, economical. For more details, consult

your local precast concrete manufacturer or write to Universal Atlas, 100 Park Ave., New York 17, N. Y.

Universal Atlas Cement Division of United States Steel



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WF-83

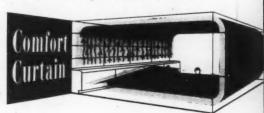
Don't let YOUR classroom plans include hot spots and cold drafts!

Here is 12-point proof of uniform temperature! Full perimeter air distribution assures room-wide circulation

Twelve thermocouples (laboratory devices for measuring temperature) scattered throughout the occupied area of this classroom show a reading of 74° at the recorder in the foreground. This is further proof that the Lennox Comfort Curtain® system provides the complete air circulation necessary to maintain a uniform temperature throughout the entire room. Only Comfort Curtain provides a "curtain" of rising air over the entire outer wall and windows... at uniform velocity. It sets all of the air in the room into gentle motion to eliminate

hot spots, cold spots, drafts and stale air. Individual "Day-Nite" thermostats maintain room-wide temperatures within ½° of setting. "No-occupancy" settings permit substantial fuel savings. Because each classroom has its own self-contained system, future building expansion is simplified. For complete information about the COMFORT CURTAIN system and its use with all types of heat sources, write LENNOX, 520 S. 12th Ave., Marshalltown, Iowa. If more convenient, call your nearest Lennox office and ask for a technical representative to call.





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Comfort Curtain® provides <u>full room</u> air distribution

WITH...
Individual room control of
fresh air ventilating and heating
... for only \$1.07 per sq. ft.



Wellerwood Elementary School Grand Rapids, Michigan Colton-Hornbach Associates, Architect

Since COMFORT CURTAIN equipment is independently controlled, each room's temperature level can be immediately altered to meet the requirements established by the number of students, their activity, and outside weather conditions. The total heating and ventilating cost for ten classrooms was \$1.07 per sq. ft. The COMFORT CURTAIN equipment included: all controls; gas-fired heat sources (in approved heater rooms between every two classrooms); air processing units in each room which control, blend and filter precise amounts of fresh outdoor air, heated air and return air, and distribute it uniformly along the full length of the exterior wall. The air is discharged through functional prefinished bookshelf ducts. No central heat plant, furnace room, and elaborate duct or piping systems were required. Simple structural requirements and ease of installation reduced initial costs and over-all expenditures.

The Record Reports

Four Bridges Win A.I.S.C. Competition

In a competition which has been sponsored for 32 years by the American Institute of Steel Construction, four steel bridges in four different categories have been designated the most beautiful opened to traffic in the United States during 1960.

The top prize winners and four honorable mentions were chosen from 89 entries located in 29 states by a distinguished jury. The jury included: A. L. Aydelott, A.I.A., A. L. Aydelott and Associates, Memphis; Thomas S. Buechner, Director, Brooklyn Museum, Brooklyn, N.Y.; Professor Glenn W. Holcomb, President, American Society of Civil Engineers, Oregon State University, Corvallis, Ore.; George Lindstrom, Lundstrom & Skubic Architects, Chicago; and Geoffry Platt, F.A.I.A., New York.

Special ceremonies will be held at a later date in which stainless steel plaques will be affixed to the four prize bridges and certificates awarded the designers, owners and structural steel fabricators of the honorable mentions.



Winner of the Class I Award, for bridges with spans 400 ft or more, was Summit Bridge, over the C & D Canal, Summit, Del. The owner, U.S. Army Corps of Engineers; designer: J. E. Greiner; fabricator: American Bridge Division, United States Steel Corporation. The jury praised the long, low silhouette, graceful arch of the through-truss design that blends with the gently rolling countryside.



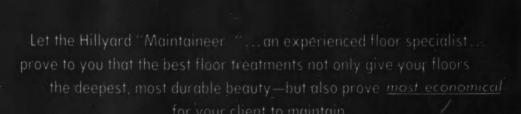
The Class II Award, for bridges with fixed spans under 400 ft and costing more than \$500,000, was won by Roosevelt Boulevard Bridges, over the Schuylkill River, Philadelphia. The owner: Pennsylvania Department of Highways; designer: Richardson, Gordon & Associates; fabricator: Bethlehem Steel Company. The jury noted "the excellent balance between steel girders and concrete piers creating an honest design that embodies classic lines, stately proportions."

continued on page 88

on the one hand economy

and on the other
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durable floors





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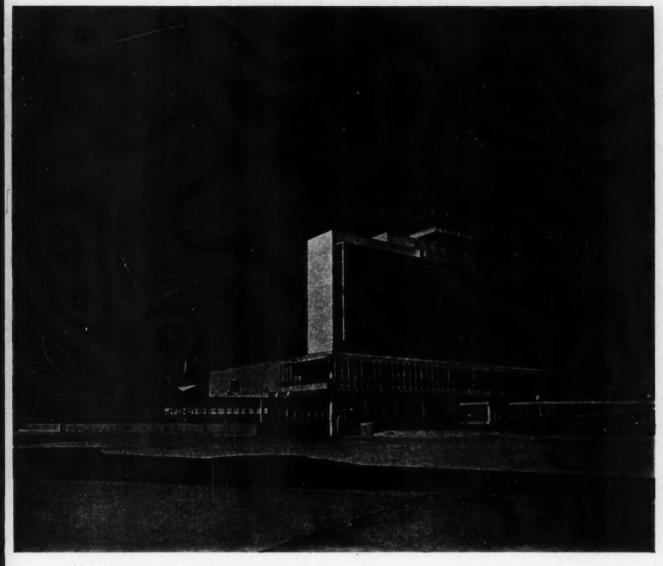
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Alcoa® Aluminum is totally adaptable to any and all design concepts. Extrudable, formable and finished in great variety, Alcoa Aluminum is for function, for simplicity, for impressive beauty.

For window walls in the concourse corridors—275,000 lb of Alcoa Aluminum; 25,000 lb in the supporting grid for the office tower curtain wall; 50,000 lb for window frames, gravel stops, lighting standards, railings; and 150,000 lb for conduit. Even the mobile sculpture in the lobby is of Alcoa Aluminum among other uses. It is the metal of the jet age.

And why buy Alcoa? Simply because no one can match the extent and depth of Alcoa's experience in using aluminum in architecture.

You can enjoy design freedom, cut costs in erection, achieve distinctive beauty in your next building. For a wealth of Alcoa ideas about aluminum in architecture, call your nearest Alcoa sales office, or write: Aluminum Company of America, 1821-M Alcoa Building, Pittsburgh 19, Pa.

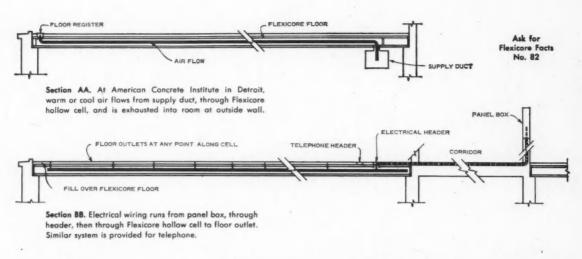


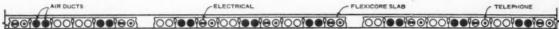
ARCHITECT: Robert & Co., Associates, Atlanta, Ga. GENERAL CONTRACTOR: Blownt Bros. Construction Co., Montgomery, Ala.

ALUMINUM FABRICATORS: The William Bayley Company, Springfield Ohio; Gridwall Company, North Hollywood, Calif.; Townsend Roofing Co. Atlanta, Ga.; Decatur Iron & Steel Company, Decatur, Ala.; Flour City Architectural Metals Division, Hupp Corporation, Minneapolis, Minn. ELECTRICAL CONTRACTOR: E. S. Boulos Company, Portland, Maine

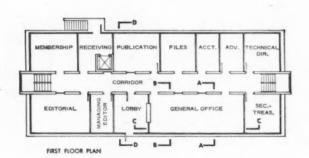
Entertainment at its Best . . . ALCOA PREMIERE with Fred Astaire as Host . . . Tuesday Evenings, ABC-TV



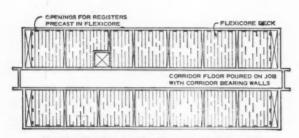




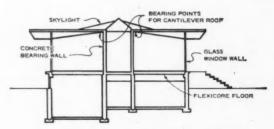
Section CC. Selected cells are used for electrical, telephone, and for air ducts. Electrical fittings by Conduflor Corp., Cleveland.



HOW TO USE CELLULAR CONCRETE DECKS FOR ELECTRICAL AND AIR DISTRIBUTION



First Floor Framing. Corridor floor was cast in place with corridor bearing walls. Flexicore clear-spans from corridor walls to outside walls.



Section DD. Corridor walls are sole support for roof.

Minoru Yamasaki & Associates, Architects, Birmingham, Michigan



Hollow cells in Flexicore precast, fireproof floors are used for electrical and telephone wiring, and as air ducts for warm air heating, air conditioning and ventilating at American Concrete Institute Headquarters. Detroit.

For more information on this project, ask for Flexicore Facts No. 82. Write The Flexicore Co., Inc., Dayton, Ohio, the Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio or look under "Flexicore" in the white pages of your telephone book.



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FUEL FOR THE FUTURE...FUEL FOR TODAY...GAS

GAS IS HERE TO STAY—You can assure your clients of continuing high performance and low cost because gas equipment, now and in the future, offers the greatest opportunity for year 'round air conditioning. Gas reserves, as well as transmission and distribution facilities built to meet natural gas heating requirements, are more than adequate to meet any load. No expansion is required to provide energy for the summer cooling load. And gas provides the

COOLING

ABSORPTION CHILLERS—Efficient, safe, vibration-free absorption chillers may be direct gas-fired; low pressure steam or hot liquid actuated. Direct gas-fired units are available in sizes from 3.5 to 25 tons and provide both cooling and heating for small commercial installations. Steam and hot liquid operated absorption machines are available in sizes from 25 to 1,000 tons. Because the absorption cycle produces cold from heat without large moving parts, maintenance is kept to a minimum; as is vibration.

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- NATURAL GAS ENGINE COMPRESSOR UNITS—Proved by millions of working hours on the world's toughest jobs, natural gas engines provide a versatile and efficient method of driving reciprocating and centrifugal compressors. A high degree of flexibility is obtained, and units are available from 5 to 150 tons.
- STEAM TURBINE DRIVEN CENTRIFUGAL COMPRESSION UNITS—High speed range, compactness, flexibility and ease of control make steam turbines practical partners of centrifugal compressors for larger air conditioning installations. Various turbine types are available to meet varying situations where a source of high pressure steam is available. Added efficiencies are available by utilizing combination steam turbine—absorption systems.
- **STEAM JET REFRIGERATION SYSTEMS**—Custom designed and built steam jet refrigeration machines are available to meet almost any need. Units are available from 6 to 1,200 tons capacity, and are suitable for chilled water temperatures down to 35°F. They may be built to operate with steam at any one of a wide range of pressures down to 2 psig.
- **DEHUMIDIFICATION SYSTEMS**—For accurate control of humidity, dehumidification equipment which uses steam generated by natural gas can be used in conjunction with commercial or industrial air conditioning, or for industrial processing. Package units are available in sizes from 1,100 to 15,000 cfm.

GAS TURBINE LIGHTING/HEATING/COOLING SYSTEMS

A sophisticated approach to the provision of lighting, electric power, heating and cooling may be obtained by the specification of an all-gas central power system based around a modern, lightweight continuous duty gas turbine. Exhaust heat recovery systems, coupled with the turbine's high efficiency.

The Superior Fuel for Year 'Round Air Conditioning

energy for the widest variety of systems. Combinations of air conditioning, space heating, water heating and incineration systems often can be all gas-fired. Too, the wide variety of sizes and types of gas equipment means that you never have to oversize or undersize. The following paragraphs demonstrate how these many types of equipment will exactly fit your needs. Your local gas utility company will be glad to give you more information, too.

HEATING

- HYDRONIC SPACE HEATING SYSTEMS—Modern, efficient hydronic heating systems can meet every space heating need. Equipment is available for either steam or hot water applications. Full range of sizes makes possible exact fulfillment of specification requirements. A variety of boiler and hot water generator types permit installation savings, as well as savings in operating cost and maintenance.
- DIRECT GAS-FIRED WARM AIR FURNACES—Packaged and custom built gas-fired warm air furnaces are available in a variety of sizes and types to meet all space heating demands. Advanced control systems offer fully automatic operation for most applications. Specialized warm air heaters—such as direct gas-fired make-up air heaters—fit industrial and process requirements for a wide variety of industries.
- UNIT HEATERS/DUCT FURNACES—Auxiliary or complete heating needs may be met by these versatile gas-fired units. A wide variety of mountings make unit heaters particularly adaptable to use wherever machinery or other obstacles prevent free circulation of heated air. Duct furnaces may be incorporated into existing air distribution ductwork, thereby proving an efficient, low-cost heating system, capable of fully automatic operation.
- **DIRECT GAS-FIRED INFRARED HEATERS**—Efficient, low cost solutions to many spot heating and industrial process applications are provided by this equipment. Hundreds of these units are now heating industrial plants, loading docks and entrance lobbies.
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permit high overall system efficiencies. Advanced features such as high frequency lighting, extreme service life, low incidence of in-service failure, low specific fuel consumption and maximum flexibility call for careful consideration of this modern power system for medium and large buildings. A growing line of gas turbine equipment is now available.

GAS-FIRED WATER HEATING—A wide variety of gas-fired equipment is available to meet any water heating need. Automatic storage heaters, instantaneous water heaters, hot water generators with an indirect coil in the boiler, and similar equipment, coupled with a variety of storage systems, provide dependable, low cost hot water.

MODERN GAS LIGHTING—More and more restaurants, clubs, shopping centers, hotels and villages are incorporating modern gas lighting into their overall lighting systems. Various types and models are available from many manufacturers; gas signs are available for distinctive advertising displays.

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Contact your local gas utility company for complete engineering backup on your current projects. Fully qualified professional engineers specializing in air conditioning, space heating water heating and incineration are available to help you with a wide variety of problems ranging from the preparation of feasibility studies to the selection of qualified local contractors. And, complete data is available in all of the areas listed below.

Air Conditioning & Space Heating

Degree days and estimated cooling hours

Wind and solar conditions

Qualified local contractors Manufacturers with local representatives

Availability of utility services

Incineration

Local fire building

Air pollution, health codes and regulations.

Economic study of alternate waste disposal methods.

Estimated waste or refuse loads

Data on similar successful instal lations in immediate area.

Water Heating

Estimated peak load require

Recommendations on equip

Local equipment service facil

Comparative economic studies

Local utility rates

Availability of utility services

Qualified local contractors.

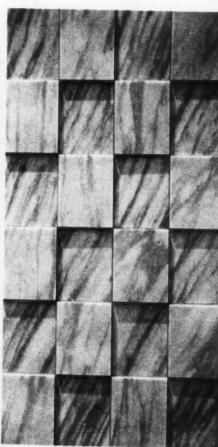
For highest efficiency and lowest cost in year 'round air conditioning, specify gas using equipment for both heating and cooling. Performance data; cost details and engineering aids are yours for the asking. Call your local gas company, or write to the American Gas Association, 420 Lexington Ave. New York 17, N.Y.

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new artistry in marble









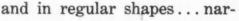
marble-faced precast panels

Since building became an art, marble has been regarded as the blue blood of building materials. Perhaps its aristocracy has gained too much credence. Certainly its consideration has often been denied because the expense was thought to be too high. Discounting its tangible prestige value, the fact that it has been proven again and again to pay for itself in lower upkeep could not, in

many cases, overcome the dif-

ference in initial cost. Now, the development of marblefaced precast panels has virtually eliminated any difference in first costs, while actually increasing the big difference in beauty, durability and low maintenance. Even more important, however, is the fact that this precast process opens many wondrous new ways to use marble. Marble facings may be used in varying sizes





row strips, small squares, rectangles, regular ashlar among them. The myriad of colors and markings are as profuse as they are beautiful. The combination of patterns and colors is close to infinite. The finest building material of all - now as economical initially as it is overall-challenges the imagination of the boldest practitioners of architectural art.



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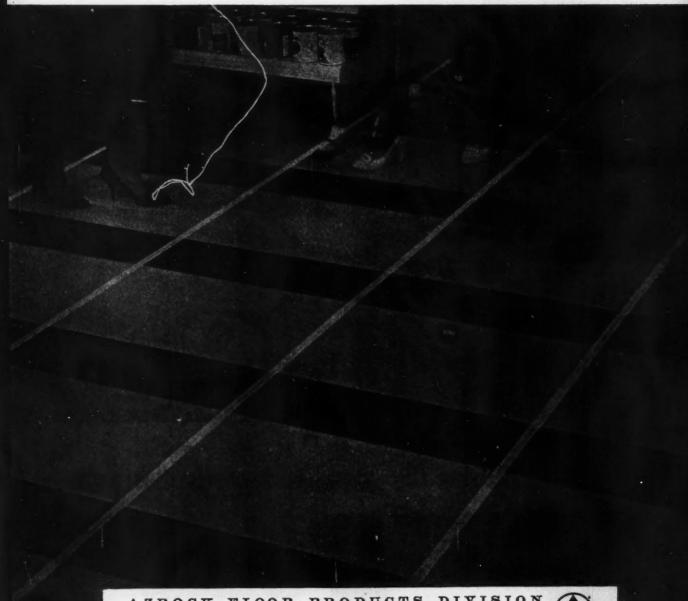
DIVISIONS: Structural, Nelson, Georgia; Calcium Products, Tate, Georgia; Alabama Limestone, Russellville, Alabama; Green Mountain Marble, West Rutland, Vermont; Tennessee Marble, Knoxville, Tennessee; Alberene Stone, Schuyler, Virginia; Willingham-Little Stone, Atlanta, Georgia; Consolidated Quarries, Lithonia, Georgia.

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Now, a vinyl asbestos floor tile with distinctive color chip styling that won't wear away under heavy, concentrated traffic. The chip pattern is distributed at every level through the full thickness of the tile. Vina-Lux 800 Series costs no more than ordinary vinyl asbestos tile... yet delivers so much more value.

The Vina-Lux 800 Series can be specified for installation over concrete — even below grade, or over wood subfloors. In 12 fashion-coordinated colors; 9"x 9" size; $\frac{1}{8}"$, $\frac{3}{32}"$ and $\frac{1}{16}"$ gauges. See Sweet's Catalog or write for samples, color charts and complete architectural specifications — no obligation, of course.



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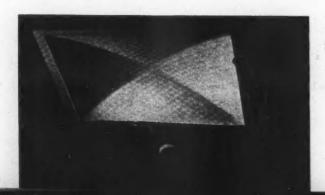




MOVABLE PARTITION, J-M HIGHWALL

CONFERENCE TABLE, J-M COLORLITH

ACOUSTI-SHELL - new J-M acoustical product-



Acoustical ceilings can now be more than just a plane surface! New J-M Acousti-Shell is a molded unit that rises gently to a 2" vaulted center.

This third-dimensional effect adds both height and interest to virtually any ceiling, as the above photograph demonstrates. The panels also offer excellent sound absorption across the entire audible range.

And because each Acousti-Shell unit is made entirely of fiber glass, it has a flame-spread rating of zero. The base material is sound-absorbing glass fibers . . . the sur-



orings a true 3rd dimension to sound control!

facing material is a woven fiber glass fabric. These are molded into units 24" x 24" x 2" high, which are of a shelllike thickness about one-third that of flat sound-control panels. Yet they are strong, rigid and easily installed in a simple suspended grid system.

Standard Acousti-Shell fabric colors are white, blue and green. On special order, however, the surface fabric may be dyed in a wide variety of colors or can be printed with custom designs.

The new Acousti-Shell line also includes flat panels for

borders, for areas around columns and beams, for spotlight cut-outs and similar uses.

For more information and a look at this unique new ceiling panel, call your J-M Representative. Or write Johns-Manville, Dept. AR-12, Box 158, New York 16, N. Y. In Canada: Port Credit, Ont. Cable: Johnmanvil.

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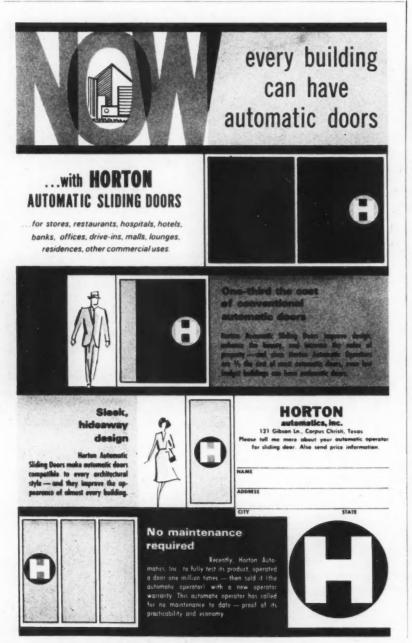
The Record Reports

continued from page 75



The Class III Award, for bridges with spans under 400 ft, costing under \$500,000, went to Cemetary Access Bridge, Milwaukee, Wis. The owner:

Milwaukee County Expressway Commission; designer: Howard, Needles, Tammen & Bergendoff; fabricator: C. Hennecke Company. The jury commented, "the most impressive entry in the competition. The imaginative integration of the tapered legs and curving girder into one continuous rigid-frame is at once graceful and exciting."





The Class IV Award, for movable bridges, was granted Rio Vista Bridge, over the Sacramento River at Rio Vista, Calif. The owner: State of California; fabricator: Judson Pacific-Murphy Corp. Division, Yuba Consolidated Industries, Inc. The jury cited this bridge for its straightforward design. In contrast with most lift bridges, these two towers are "decorative as well as functional, providing stark contrast with the horizontal line established by the approaches."

Honorable mention awards were given Bonner Springs Bridge, Bonner Springs, Kan.; Mansfield Reservoir Bridge, Hollandsburg, Ind.; North Fork Consumnes River Bridge, Placerville, Calif.; and Grand River Bridge, Harpersfield, Ohio.

Mr. M. G. Gaskin, chairman of the board of Taylor & Gaskin, Inc., Detroit, and chairman of the A.I.S.C. Committee on Awards, said, "The number of entries received indicates an increasing interest on the part of state highway departments and bridge engineers in the use of structural steel for its strength, lightness, durability and esthetic possibilities. The jury particularly commended those bridge designs which did not intrude on their natural settings but were handled with restraint and sensitivity."

more news on page 198



matched color finishing. These rigid, guaranteed flat panels, while strong enough to support the weight of a full-grown man, are exceptionally lightweight . . . less than 2 lbs. per square foot. Most amazing of all is the way Dual-Panels pop into place with no knobs, handles or fastenings in evidence. How is it done? The secret is Buensod's, but the benefits are all yours. See your Buensod representative or write for your free, colorfully illustrated Dual-Panel Brochure No. MP-10.



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A national organization to improve and extend the uses of concrete



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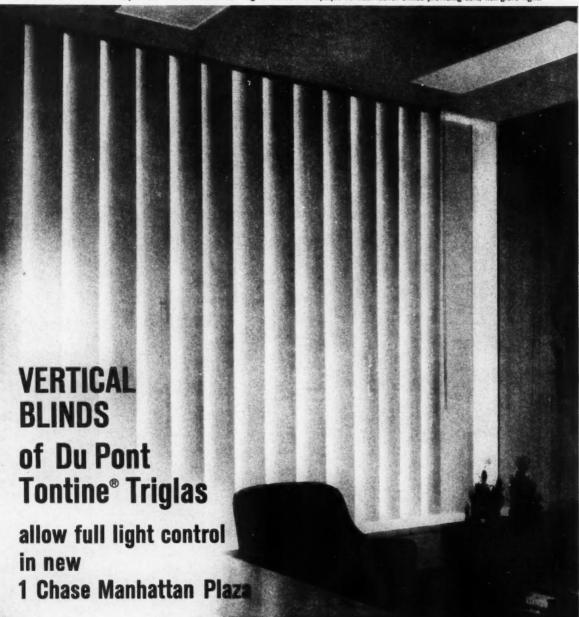
We would be happy to send you detailed information, or, if you wish, have a representative call on you. Please advise by writing to

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Modern throughout, 1 Chase Manhattan Plaza has vertical louvered blinds in every one of its 8,800 windows. "Tontine" Triglas* vinyl-coated woven glass fabric gives offices a smart new look. Blinds are neat . . . easy to clean . . . rotate to permit light desired and slide like a drapery to either side of window. They're dimensionally stable . . . resist curling, twisting, bowing or distortion. Long-lasting matte white finish reflects solar heat . . . helps keep rooms cool. Blinds fit windows of any size. Du Pont makes fabrics used . . . does not manufacture the blinds. Send coupon for free swatches of "Tontine" Triglas.

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AND FURTHER FACTS ABOUT TRIGLAS ...

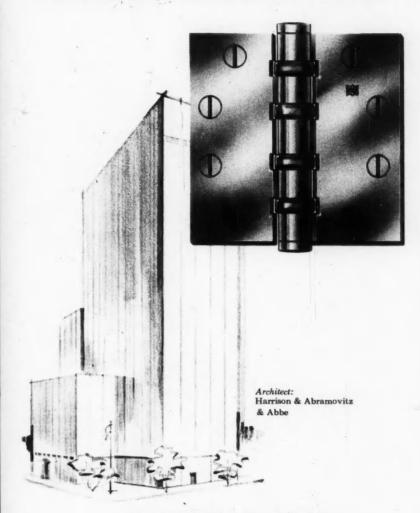
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Please send swatches of "Tontine" Triglas vertical louver woven glass fabric and names of manufacturers of vertical louvered blinds.

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"For higher quality " at lower cost

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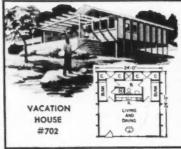
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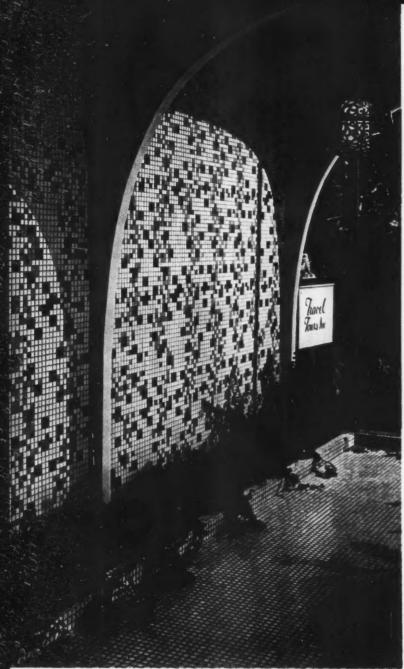


AUTOMATIC CANTEEN

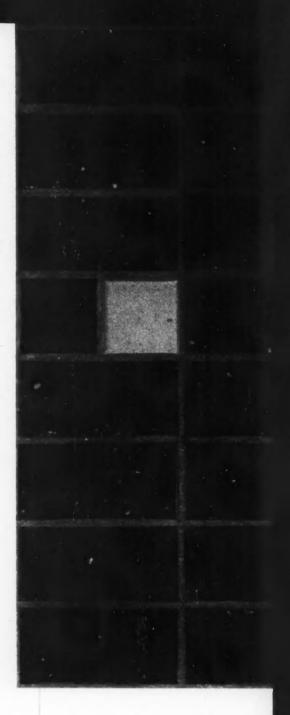
AUTOMATIC CANTEEN COMPANY OF AMERICA Merchandise Mart Plaza, Chicago 54, Illinois Gentlemen:

- □ Please send me () copies of your booklet "How to Design a Food Service for Today . . . and Tomorrow."
- ☐ I would be interested in meeting a Canteen food facilities specialist. Have him call at his earliest opportunity.

Name______Company_____Street______City______State_____State_____

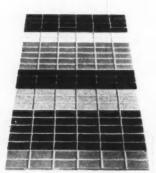


A commercial entrance with wall in Precedent Ceramic Mosaic Designer Pattern P9-2045. Floor: 1" x 1", Driftwood, Plate 448.

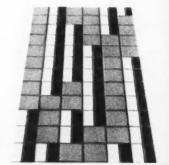




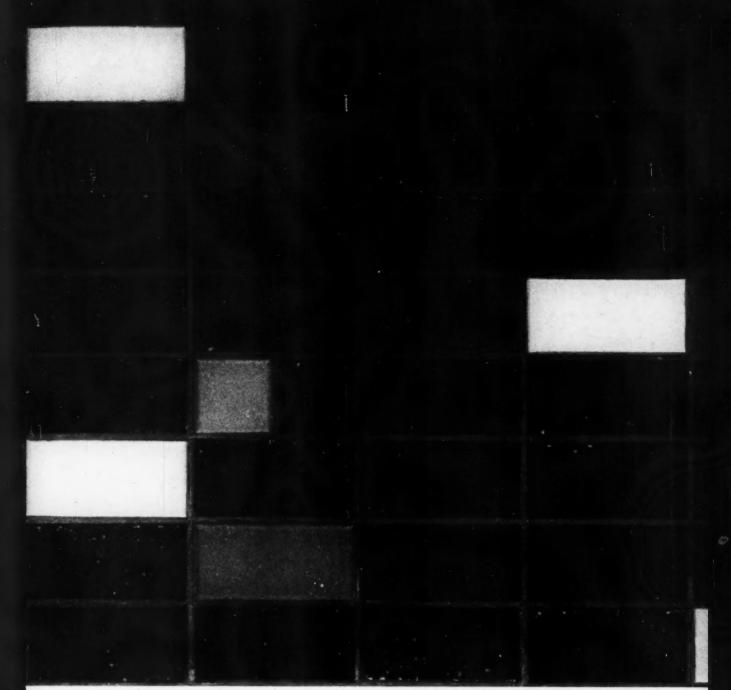
12 New Texline* Blends Shown: Pattern P13-2178



9 New Designer Patterns Shown: Pattern P8-3219



32 New Blends, Stripes and Block Randoms Shown: Precedent Stripe Pattern P35-2395 Maintained in stock for prompt shipment



Precedent Designer Pattern P1-3030. Shown Actual Size.

Crisp new colors ... fresh new patterns ... rich new textures

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Fifty-four new colors—clearer and purer than any you have seen before. Fifty-three sparkling new patterns, keyed for color harmony with glazed tile and bathroom fixture colors. Made in modular 1" x 1", 2" x 1" and 2" x 2" sizes. ■ Write for booklets 561 and 562 which show all the Precedent patterns in full color and give complete technical facts and color harmony ideas.

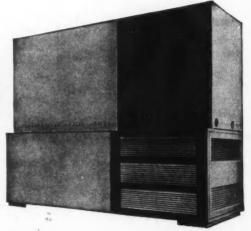


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INSTANTLY HEATS AND COOLS AUTOMATICALLY HEATS WATER WITHOUT A BOILER COOLS WATER WITHOUT A COMPRESSOR REQUIRES NO LUBRICATION SEALED FOR LIFE, REQUIRING MINIMUM MAINTENANCE MAINTAINS SAME CAPACITY FOR THE LIFE OF THE UNIT HAS NO MOVING PARTS IN THE HEATING AND COOLING CYCLE FIRST MEDIUM OR LARGE TONNAGE AIR CONDITIONER THAT HEATS. Truly revolutionary . . . investigate for your next building project the new Arkla DF-3000 Gas-fired All Year Chiller-Heater. For details contact your local

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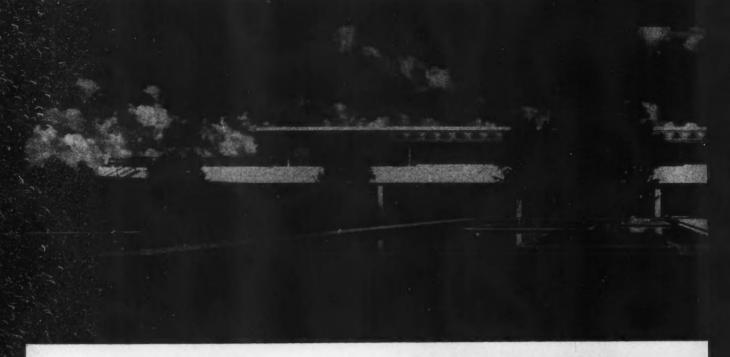
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SPACE-FRAMED ADMINISTRATIVE CENTER

SOM's skillful blend of structural expression, changing scale, notable landscaping, and fine detail results in distinguished architecture for the Upjohn Company







The building serves solely as the administrative nerve center for an industrial and distribution complex composed of buildings located both here and abroad



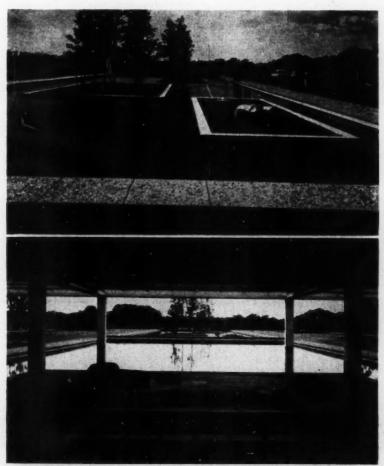
General Office Building, The Upjohn Company, Kalamazoo, Michigan

This handsome new general office building for The Upjohn Company is notably appropriate for both its setting and purpose; makes use of an unusual space frame to carry out those objectives in distinguished fashion.

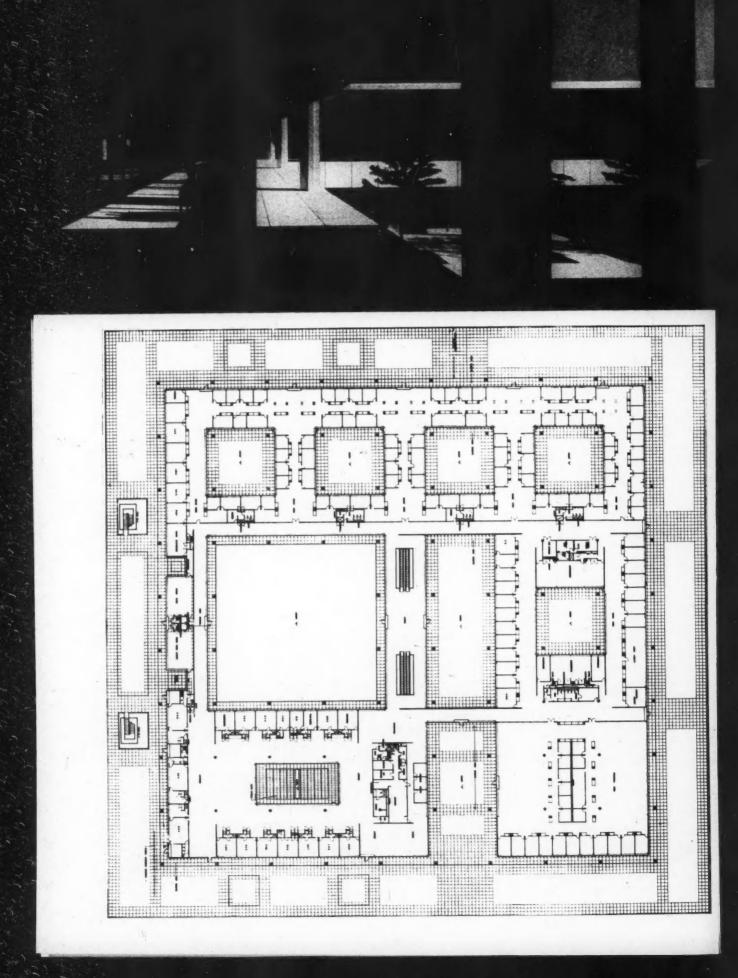
The building is in the form of a spreading pavilion surmounting a lower level structure—or base plinth-devoted principally to services. This parti followed a study of various alternate ideas, including high-rise structures. The pavilion's long, horizontal line fits easily into place in the softly rolling Michigan prairie; and has its plinth tied to the 80acre site by native stone retaining walls. A series of pools in courtyards and at base level-as well as three new man-made ponds -serve to echo the lakes that characteristically dot the region.

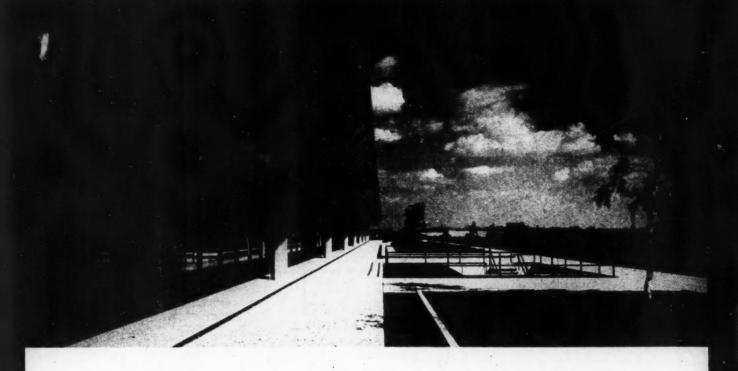
The idea of an informal relationship between departments and a free flow of spaces led to the pavilion concept, and the idea of diminishing scale and detail from prairie to courtvard.

William E. Hartmann, Bruce G. Graham, and William E. Dunlap were the SOM principals, supported by the mechanical, structural, and architectural departments.



Two photos above show how water is used effectively to tie building and parking area (top) and motor entrance (bottom) to the surrounding countryside





Upjohn Office Building: COURTS PUNCTUATE A SPREADING SQUARE

In essence, the scheme consists of a single spreading pavilion 432 ft square, approached and serviced from below; and punctuated by a series of various sized courtyards. The largest of these—left center in the plan, and pictured at left—extends through both levels to become an impressive entrance yard; the remainder of the courts are smaller in scale and one story high.

The pavilion is sheltered by a steel space frame supported on metal clad columns—Greek cross shape in section—spaced 48 ft on centers both ways. The space frame is effectively expressed by the continuous coffered ceiling of 6 ft square pyramids of reinforced plaster, and by the aluminum perimetric frieze of tetrahedrons.

The strong structural statement gives cohesive unity to a variety of spatial experiences within a changing scale pattern that progresses from the bold strokes of the motor entrance (p. 103) through the entrance court to the almost Japanese character of the smaller courts (p. 109). Flooring materials for both interior and exterior areas were carefully chosen to maintain the flow of scale from large to small, and to express in visual terms the use of space.

General Office Building, The Upjohn Company, Kalamazoo, Mich.

Skidmore, Owings & Merrill, Architects & Engineers

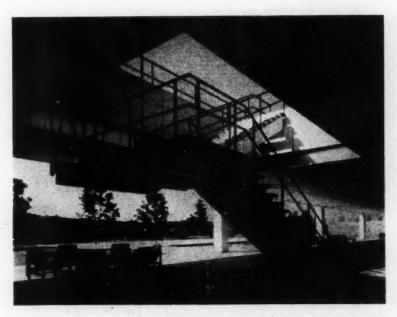
Sasaki, Walker & Associates, Landscape Consultants

Edison Price, Lighting and Fixture Designer

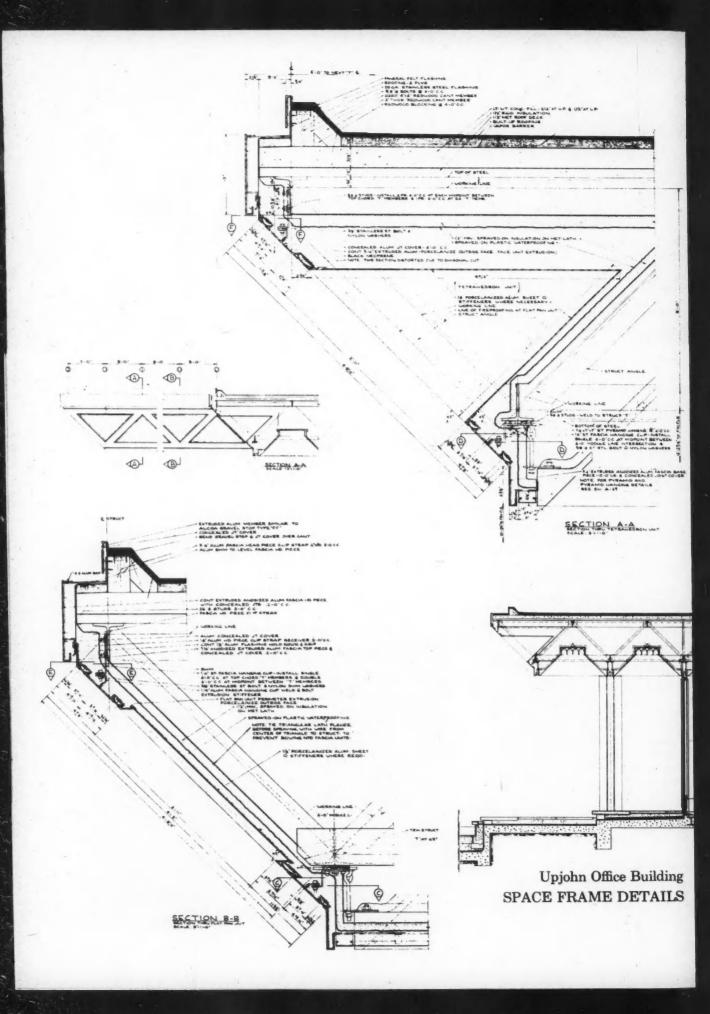
Richard Kelly, Consultation for entrance and wall washer lights

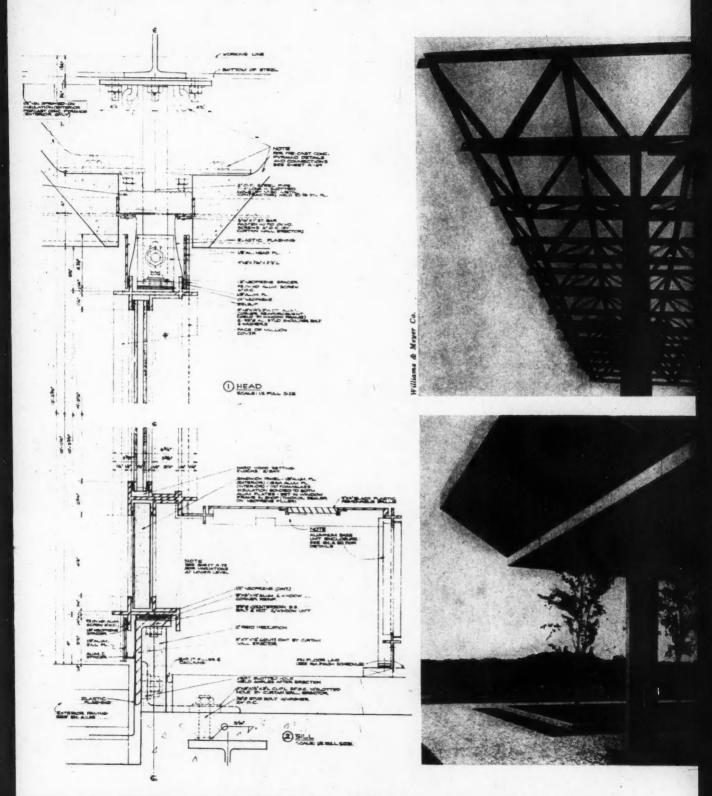
Virginia C. Mosely, Interiors Consultant

O. W. Burke Co., General Contractor



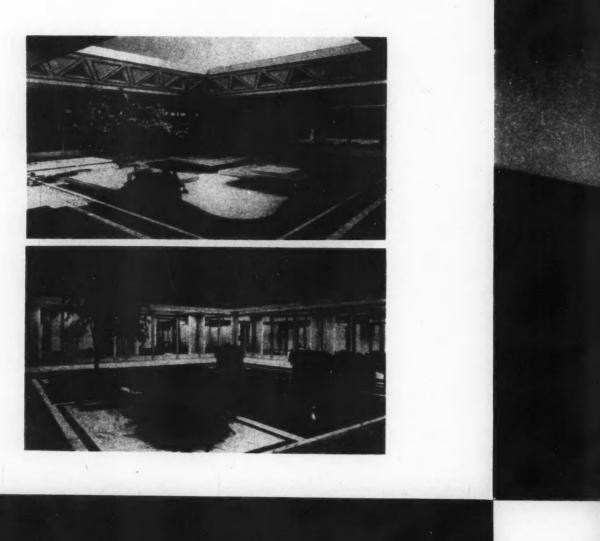
ARCHITECTURAL RECORD December 1961

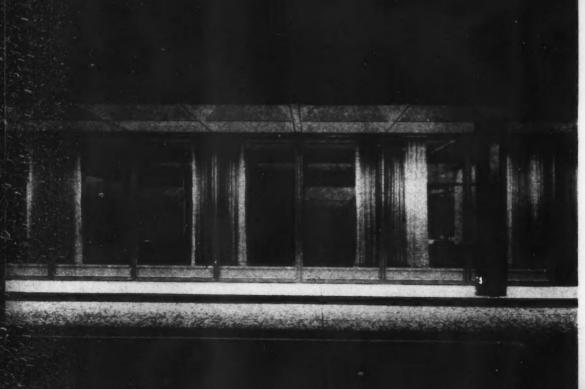




The architect's working drawings are reproduced to show the handling of the space frame and glass curtain. The 3-ft deep space frame was analyzed mathematically and this analysis verified by load testing a scale model and a full-size mockup.

The lighting units, which comprise the top of each ceiling pyramid, were designed by Edison Price in collaboration with SOM. They are a square composed of 4-24 in. lamps above baffles that virtually eliminate the light source from direct view. The ballast assembly tops the fixture (see detail). The result is notable; a soft, pervasive luminescence pleasantly free of glare, yet affording a quality of direct light desirable for reading and for correct modeling of form and texture.







Upjohn Office Building THE COURTYARDS

Several of the courtyards are shown on these two pages, so the reader may gain some idea of the variety in their size and treatment. They reflect faithfully the scale progression of the building—from the expansive, two-story, 150 ft-square entrance yard and pool (above) to the more intimate, Japanese-like character of the one-story, 50 ft-square garden spaces. At left, the bottom photo shows a detail elevation shot of the glass curtain, lighting effect, and space frame edge pattern as they appear at dusk

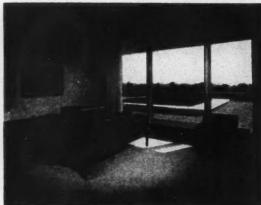






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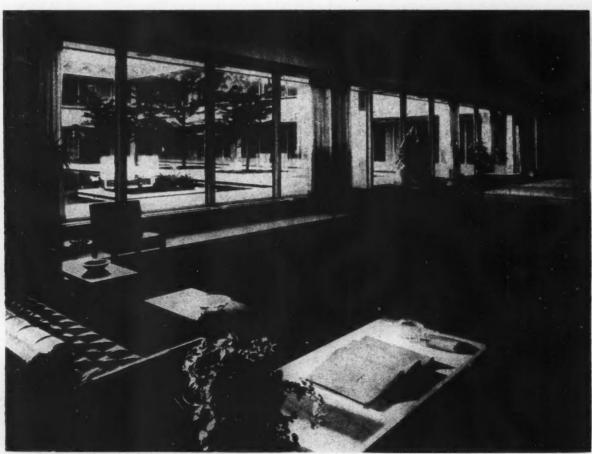


Upjohn Office Building INTERIORS

The photo below shows a reception area at lower level, overlooking the large entrance

courtyard. The lower structure is of concrete and therefore has flat ceilings.

Above, one sees a reception and secretarial area; and to the right, a typical private office. The effect of the coffered ceiling lighting is such that the source is nearly invisible, and the greatest intensity of illumination occurs on desks and the floor. A noteworthy aspect of the interiors is their quality of uncluttered, flowing spaciousness



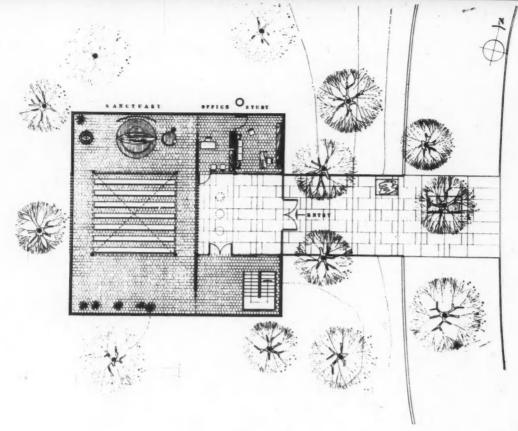
ARCHITECTURAL RECORD December 1961



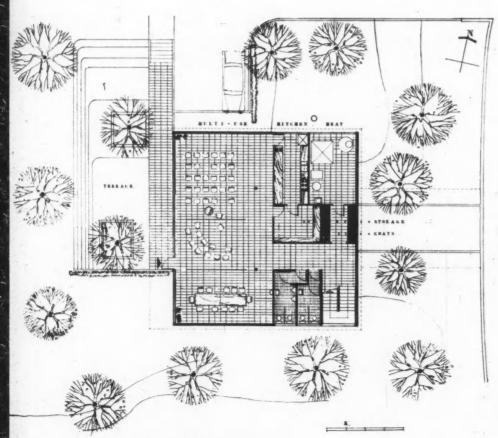
Warren Reynolds

A Church for the Deaf

Good lighting, both artificial and natural, and good sight lines were prime factors in Ralph Rapson's design for a low budget Lutheran church for worshippers who must follow the service by reading the minister's lips



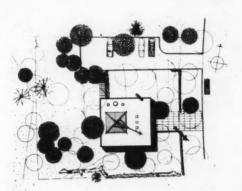
First floor plan .



Basement plan



Above: view from north. Below: main entrance. Design character of church reflects its location in fine residential neighborhood.



NAME: Prince of Peace Lutheran Church for the Deaf LOCATION: St. Paul, Minnesota ARCHITECTS: Ralph Rapson, Rapson Architects STRUCTURAL ENGINEERS: Meyer and Borgman CONTRACTOR: Isadore and William Goldetsky

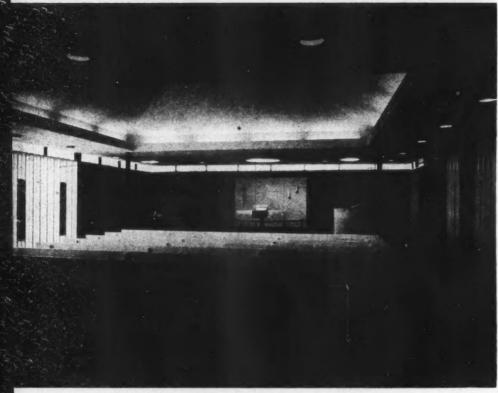
This church for the deaf would be of interest even if it were not for its special function because it is an unusually handsome structure built within a strictly limited budget. As well as serving as a church, the building is the vital social and educational center for the deaf people of St. Paul. Built for \$73,335 (not including \$3,000 for landscaping, retaining walls, bridge and furniture) at a unit cost of \$13.30 per sq ft, it seats 120 persons in fixed pews with overflow and expansion space for approximately 50 additional seats. Educational facilities are provided in the basement for approximately 75 to 100 children.

The court plan with connecting bridge to the street was conceived to give the deaf people a semi-private area for comfort and relaxation. The court permits overflow and expansion. At the basement level the terrace provides vitally needed additional social and educational space.

The structure consists of precast concrete floor panels, concrete block basement walls, stacked-bond brick cavity walls on the upper level and wood roof construction. A forced warm air heating system is used with provision for future air conditioning.



Warren Reynolds



The roof is separated from the wall structure providing a continuous halo of light as part of the design approach which provides a high level of illumination from both natural and artificial sources to facilitate lip reading. Interior walls are brick with a sand finish. Plaster ceilings and pews are painted white for high reflectivity as well as appearance



Recent British Church Design: An Agreement to be Radical

by Peter Hammond

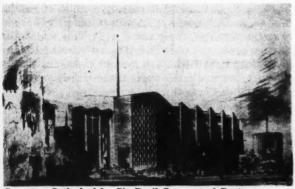
The Reverend Peter Hammond, a leading British critic of church architecture and author of the well known book on contemporary English churches

Liturgy and Architecture, here describes and criticizes recent British churches which best express changing liturgical thought

From the early fifties onwards a steady stream of illustrated surveys of modern churches has poured from the continental and American presses. In most of these books, as well as in the numerous periodicals dealing with modern church design, the work of British architects has been virtually ignored. This is understandable: as recently as two years ago there was scarcely a single example of authentic modern architecture to be found among all the hundreds of new churches built in this country since the early thirties. The monumental survey Kirchen, published in Munich in 1959 and containing photographs of postwar churches all over the world, includes only two examples of British church architecture, and it is significant that one of these is the only church in the whole book based on a plan which is still widely regarded in this country as the "normal" or "traditional" layout for a parish church: "traditional," in English ecclesiastical parlance, usually means "late 19th century."

A few determined editors have scraped the barrel to produce a church or two, usually from the New Towns or the suburbs of Coventry, designed in what is commonly described as "a contemporary idiom" or "the modern style," and is in fact largely a byproduct of the Festival of Britain. The still unfinished Anglican cathedral at Coventry, in many ways the most impressive monument in this genre, is too large to ignore; but it tends to baffle Continental writers, who characterize it as "une solution d'un romanticisme très nordique," or, like M. Pichard, regard it as a sign that "l'Angleterre s'engage dans un renouvellement de l'art religieux très nourri de symbolisme." Elsewhere, one may find a passing reference to the work of Eric Gill (who died twenty years ago), to Graham Sutherland's painting and Henry Moore's sculpture at St. Matthew's Northampton; perhaps to George Pace's restoration of the medieval cathedral at Llandaff, in Wales, and to the Epstein Majestas which now dominates the nave. That is about all, and it does not amount to very much; certainly not enough to justify another essay on church architecture in Britain.

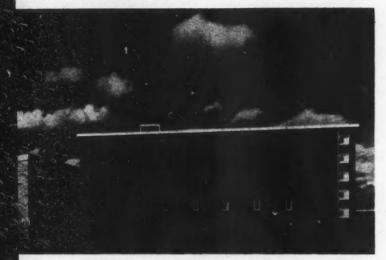
In actual fact, the last four years have seen the beginnings of a debate about church design which could lead to a revolution in British ecclesiastical



Coventry Cathedral by Sir Basil Spence and Partners



Anglican parish churches at Willenhall (exteriors) and Tile Hill (interior) Coventry, 1957. Architects: Sir Basil Spence and Partners



Typical examples of conventional nineteenth century planning uninformed by functional analysis. Despite the use of new materials and structural systems no attempt has been made to think out afresh the nature of the activities which these buildings serve. They reflect an essentially medieval understanding of the Church and its liturgy: a popular idea of a church. The old pictorial preoccupations persist. The altar at Tile Hill forms one element in a two-dimensional 'composition'. Like the new cathedral at Coventry these churches merely exemplify new ways of evoking familiar associations



architecture, quite as radical, and based on sounder foundations, than that which took place during the years from about 1840 onwards as a result of the work of the Cambridge Ecclesiologists. While it is far too early yet to speak with any confidence of a renewal of church architecture in Britain, there has without question already been a decisive change in the intellectual climate and this is now beginning to bear fruit in the shape of a few genuine modern churches—as distinct from the essays in vestigial historicism and "contemporary" fancy dress with which we are all painfully familiar. I strongly suspect that in years to come architectural historians will regard the period from 1957 to 1960 as marking a real watershed in the development of church architecture in this country. It is no longer true that the cause of modern church design in Britain is bound up with the churches of Sir Basil Spence and the work of the stained glass department of the Royal College of Art. On the contrary, the kind of approach to church architecture which has produced the new cathedral at Coventry is now widely recognized, by churchmen and architects alike, as a hangover from 19th century romanticism.

In a recent essay on the development of the modern movement in Britain Sir John Summerson asserted that there is today what there was not twenty years ago, a real school of modern design in this country. He was careful to add that what he had in mind was not "national character" or "Englishness" or anything like that, but rather the very general agreement that one finds today among serious British architects as to what is the right approach to modern building. This agreement, he pointed out, "goes deeper than a sharing of stylistic conventions, which come and go fashionwise; it is an agreement to be radical, to be continuously critical of results, and to go back again and again to the program and wrestle with its implications . . . This radicalism is the great thing in English architecture today. Once lose it and 'English modern' becomes just so much provincial back-wash from the Channel and the Atlantic."2

It is of course in the field of school design that the effects of this radicalism can be most clearly seen today. The outstanding success of our school building program since the war has been very largely due to the readiness of those concerned to start from first principles, to ask fundamental questions, and to modify theoretical conclusions in the light of systematic criticism of results. Where church architecture is concerned one finds an entirely different approach. The one question which, prior to 1957 at least, was never asked was precisely: "What is a church for?" It was generally assumed that the purpose of a church was fixed and unchanging; that the architect's task, so far from involving any re-assessment of recent tradition in the light of first principles, let alone the painstaking analysis of the human

and social activities which the building served, was simply one of creating "a devotional atmosphere." In March 1957 one of our most intelligent architectural critics actually began a study of a new church with the words: "I do not have to begin in this instance by analyzing the function of the building. We all know the purpose of a church, which is a simple one in that it is fixed and unalterable and therefore does not involve the architect in a search for improvements in the program he is set, as a factory often does or a hospital." 3 How far we have progressed in the course of four years may be seen by comparing this quotation with another, from a recent number of The Architectural Review, in which it is roundly asserted that "to regard the Liturgical Movement as a most promising new source of valid forms in church architecture is to miss its point completely. . . . It postulates a complex of spatial and functional relationships between priest and congregation, the ritual and the instruments of ritual . . . The Liturgical Movement relieves the architect of neither functional nor formal responsibilities. It sets a program . . . Its interest for the architect lies in the kind of brief it will give him when he is asked to design a church-not vaguely emotive in the recent atmospheric manner, not fanatically precise over trivia, as with the Ecclesiologists of the last century, but concerned with functions and people. Such a brief, while in no way impairing the religious qualities of the building quite the other way about-puts the conceptual stages of church design on the same imaginative and intellectual footing as applies in the most forward areas of secular architecture at present." As the writer goes on, this is an approach which makes it possible for architects "to tackle church design without feeling-as has so often been the casethat they are abandoning the moral fundamentals of their architecture, based on truth and honesty in material and function, and relapsing into a theatrical pseudo-mysticism." 4 Clearly, a great deal has happened since 1957.

I do not propose to describe in any detail the events which have brought about this decisive change in the climate of church building. All else apart, I have been far too closely involved in the debate to be capable of writing about its rapid development with the necessary detachment. It may, however, be useful to recall a few of the more important landmarks.

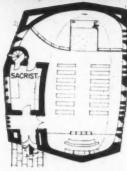
In January 1957 the publication of that most depressing survey, Sixty Post-War Churches, brought home to many people the fact that an immense opportunity was being entirely wasted: that hundreds of thousands of pounds were being squandered on buildings of the most deplorable quality, few of which even merited serious criticism. In April, in a correspondence in the pages of The Architects' Journal, the concept of "the program" was first in-

troduced into the public discussion of church design in this country by Robert Maguire and Keith Murray-whose first church, at Bow Common, in the East End of London, was then at the project stage. In May, I drew attention in a broadcast talk to the lamentable situation disclosed in Sixty Post-War Churches and stressed the need for a fresh approach to the whole business of designing a church: an approach starting from the fact that a church is first and foremost a house for a worshipping and missionary community-not an autonomous monument or a pavilion of religious art. I pointed out that the problems which needed to be faced were theological rather than "artistic," and I underlined the importance for church architecture of the movement for radical reform within the Church which is commonly (though not altogether happily) known as the Liturgical Movement. Finally, I stated the case for setting up some kind of research institute where architects, theologians, pastors and sociologists could tackle the problems of church design within the context of changes in the Church's understanding of itself, its worship and its mission in contemporary society.

The response to this talk made it quite clear that others were thinking along the same lines, and in June a small group of clergy and architects met for two days near Cirencester to discuss possible courses of action. As a result of this meeting an association was formed, primarily for study and research, but with the further aim of fostering, not least in official ecclesiastical circles, a greater awareness of the questions at issue. In 1958 this was enlarged and given a rather more formal character as the New Churches Research Group; a manifesto was published, a series of occasional papers launched, and several conferences were organized with the cooperation of university departments for extramural studies. Since then the campaign for a radical approach to church design has steadily gathered momentum. Conferences, local and denominational study groups, lectures and publications have all played their part in creating a new climate of opinion. The annual conferences and study tours organized by the University of Birmingham have stimulated interest in what is being done on the Continent. In April 1960 the consecration of the church of St. Paul, Bow Common, and the publication of my own book Liturgy and Architecture gave a considerable boost to the movement for reform, and it was observed that church architecture had become a subject fit for serious discussion in the columns of The New Statesman.

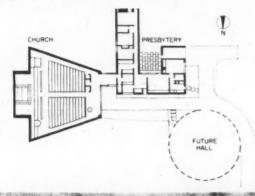
Even in official circles the new ideas have been winning support, and in the summer of 1960 the National Assembly of the Church of England passed a resolution calling for the setting up of a special commission to prepare a statement of advice for those building new churches. This commission has now





Chapel of St. Michael's College, Llandaff. Architect: George Pace. A small chapel for an Anglican theological college, completed in 1958

Below: Roman Catholic parish church at Glenrothes New Town (1959). Architect: J. A. Coia. A very simple brick structure including church and presbytery. A parish hall will eventually be built to the northwest of the church







been formed, a majority of its members being drawn from the New Churches Research Group, and its work is likely to result in the publication of an official document incorporating the results of much of the fresh thinking of the last four years. This is again a notable sign of the progress made since 1957.

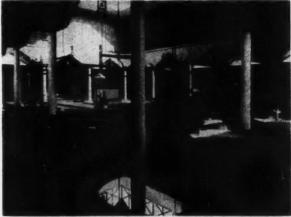
What in fact has been achieved? I think that the most encouraging aspect of the present situation is the growing recognition that the design of a church, like that of any other building, must start from the analysis of human activities. One has to begin by emptying one's mind of architectural concepts in order to ask: "What are people going to do in this building?" A church is primarily a functional structure serving the complex of communal acts which are known collectively as liturgy; it should, as Reyner Banham puts it, "support this program of religious acts as snugly as a modern school supports the program of current advanced pedagogy." It is hardly necessary to add that this kind of approach to church design inevitably means a great deal of hard thinking about the nature of the activities which the building should serve and articulate. For example, it is impossible to establish a satisfactory spatial relationship between the baptistery and the eucharistic room without first analyzing the theological relationship between baptism and Eucharist. The layout of the Eucharistic room itself demands a consideration of the nature of the community which participates in the weekly assembly of the local church. Again, the outward form of the church building inevitably depends to a considerable extent upon the changing relationship between the Church and society at large; the size of a church is bound up with that of the pastoral unit which it serves. In brief, it is impossible to abstract church architecture from its social context or to consider the form of a church building in isolation from current developments in theology, liturgy and sociology. This is what I mean by a radical approach to church architecture.

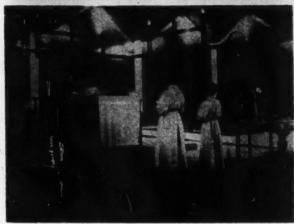
There is always a certain time-lag between the intellectual acceptance of new ideas and their embodiment in actual buildings. This is likely to be particularly marked when the ideas themselves strike at the root of established procedures and where, as in Britain today, responsibility for commissioning architects and approving their designs is to a great extent vested in local committees which are still quite unconscious of the need for reform. It has to be recognized that, despite the changes that have taken place in the climate of opinion during the last four years, there has as yet been no general improvement in the architectural character of most of the buildings erected during this period. Church architecture is still dominated by pictorial and romantic preoccupations; few of the churches built between 1957 and 1960 reflect the new concerns which have already transformed the whole character of the debate about church design in this country. I have often wished during the last four years that it was possible to call a halt to church building for a time, so that clients and architects alike could face some fundamental issues.

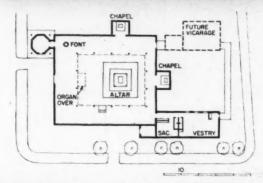
Nevertheless, things are beginning to happen. As long ago as 1952 George Pace's design for a university chapel at Ibadan marked a decisive departure from the conventions of High Victorian church planning, and several modest churches built by this architect within the last five years stand out from the general run of recent buildings by virtue of their simplicity, their straightforward handling of natural materials and their adaptation to the exigencies of the liturgy. The Roman Catholic parish church of St. Paul, at the New Town of Glenrothes, in Scotland, which was consecrated in 1959, showed quite clearly that the same concerns which had already transformed church architecture in Continental countries affected by the Liturgical Movement were beginning to extend to the British Isles. The wedgeshaped plan and shallow rectangular sanctuary make possible a high degree of congregational participation in the liturgy. The relationship between the various buildings forming part of the whole parochial center is carefully studied, and the architectural treatment provides a refreshing contrast to the vestigial historicism which had hitherto prevented even the more enterprising experiments in the adaptation of the plan to modern liturgical requirements from rising to the level of serious architecture.

But the most impressive embodiment of the new approach which I have been describing is undoubtedly the Anglican parish church of St. Paul, Bow Common, completed early in 1960. Here for the first time is a church exemplifying the radicalism and the readiness to go back again and again to the program which Sir John Summerson regards as the hallmark of serious architecture in this country. As I wrote shortly after the consecration of the church, this is a major landmark in British ecclesiastical architecture: a pioneer work which promises to be as important in its own field as the village college at Impington, or Denis Clarke Hall's pre-war school at Richmond, in that of school design. It represents the first serious attempt which has been made in this country to apply to the problems of church building the disciplines of functional analysis which have already borne such remarkable fruit in the design of our post-war schools. Here architecture has been shaped by worship; the form of the building springs from and articulates the complex of liturgical values and relationships which provides its raison d'être. In its combination of theological and architectural seriousness, its concentration on essentials and its clarity of spatial organization the church seems to me to be one of the very few really outstanding

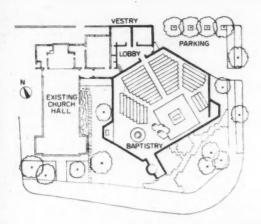


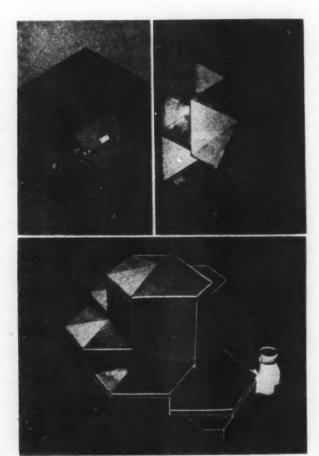






Anglican parish church of St. Paul, Bow Common, London (1960). Architects: Robert Maguire and Keith Murray. A radical departure from conventional planning formulas. The square sanctuary is placed beneath the large, almost central lantern and is further defined by a hanging corona of rolled steel sections. Around the central space is a broad processional way. The church will eventually be surrounded by high blocks of flats. The vicarage, to the northeast of the church, has still to be built. For a detailed study of this church see *The Architectural Review* for December 1960





Project for an Anglican parish church at Perry Beeches, Birmingham (1961). Architects: Robert Maguire and Keith Murray. The congregation will enter the church through a baptistery which will form a distinct spatial entity, though it will be visible from the eucharistic room. To the south of the sanctuary is the place for the ministry of the word. The choir and organ are placed to the north of the sanctuary. In this church, as at Bow Common, the seating arrangements will be flexible, and the relationship between the ministers and the whole body of the laity will be determined not merely by the seating but by the spatial organisation of the whole interior

achievements of the last decade: the first major contribution that this country has made to the renewal of sacred architecture. To quote Reyner Banham again, "it serves the needs of the Church without ceasing to be a modern building. Modern, that is, not in terms of current decorative clichés, structural acrobatics or fashionable formalisms, but modern in the sense of the hard core of moral conviction that holds together any number of formal and structural concepts on the basis of what Lethaby called 'nearness to need'." ⁵

A second Anglican parish church by the same architects—St. Matthew, Perry Beeches, on the outskirts of Birmingham—which should be completed before the end of 1962, promises to be no less interesting. Here the parish priest, like the architects, is a member of the New Churches Research Group, and the project embodies the results of a great deal of analysis and reflection; indeed, the program is probably the most carefully considered document of its kind that has yet been formulated. All else apart, this project could be of great exemplary value from the point of view of procedure and it is hoped that a detailed case history may eventually be published.

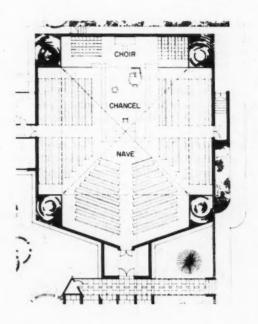
At Glenrothes New Town-apart from the churches sadly lacking in architectural distinction -another new church is nearing completion. This is the Presbyterian parochial center, including church, large and small halls, manse and ancillary accommodation, designed by Anthony Wheeler and Frank Sproson. It is a notable landmark in the Church of Scotland's post-war building program and a clear sign of the new influences that are now at work. American readers may care to compare this building with the First Presbyterian Church at Stamford, Connecticut (commonly known on this side of the Atlantic as the Stained-Glass Whale). The two churches are the product of widely divergent approaches: the one based on the radical analysis of theological and liturgical principle and human needs, the other on a romantic idea of a church stemming from an insufficiently critical view of the Middle Ages as seen through 19th century specta-

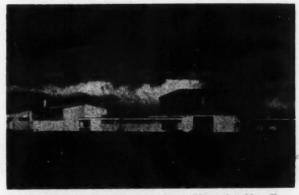
There are several other churches in this country now at the project stage which show the extent to which the former approach is beginning to issue in actual buildings. They include an Anglican parish church at Rugby, designed by Denys Hinton; another, at Gloucester, by Robert Potter and Richard Hare, whose earlier church at Crownhill, near Plymouth, completed in 1958, is a building of considerable interest from the point of view of the plan; and several recent projects by Norman Haines, including one for a prototype church for new parishes in the Welch diocese of Llandaff. The New Churches Research Group symposium Towards a Church Architecture, to be published in 1962, will include a further group of projects illustrating the

progress which has been made within the last four years.

Again, it is encouraging that the whole question of user studies, hitherto entirely neglected, is at last beginning to be faced; this could provide a most profitable field for research projects carried out at the parochial and diocesan level. The need for applying current techniques of cost programming to church building is also at last receiving the attention that it merits; there have been some lamentable examples of extravagant expenditure on bell towers. stained glass, sculpture and similar items, at best of marginal importance and frequently downright meaningless, to the neglect of what is essential. The value of serious cost programming lies above all in the fact that it compels an architect to consider what is of central importance in a church and what is peripheral. It is not without significance that the church at Bow Common is an inexpensive building by English standards, while the Roman Catholic church at Glenrothes cost just about one third of what is commonly regarded as normal and reasonable. By contrast, some of the very worst churches built during the last ten years have also been among the most expensive: the recently completed church of St. George at Stevenage New Town is a notable example.

There were those who hoped that the new radicalism in church design might affect the outcome of the recent competition for the Roman Catholic cathedral at Liverpool. The Archbishop's letter, annexed to the official conditions issued in October 1959, suggested that theological and liturgical criteria might play a more important part in this competition than they had done at Coventry. Admittedly, the conditions themselves were extremely unsatisfactory; it is debatable, to say the least, whether the primary function of a cathedral church is to enable congregations of 3000 to take part in Eucharistic worship; many of us would maintain that genuine participation becomes impossible in a building designed to accommodate more than about 500 people, and that the liturgical function of a cathedral is quite different from that of a large parish church. In any case, such hopes as had been aroused by the Archbishop's letter were somewhat diminished by the appearance of the Official Answers to Questions in January 1960, when competitors learned that the assessors, who included the architect of the Anglican cathedral at Coventry, would look first for a splendid conception. Such words had a familiar ring, and the misgivings to which they gave rise were fully confirmed when the results of the competition were announced. Whatever criteria had guided the assessors in their choice of 21 curiously heterogeneous entries for award or commendation, it seemed evident that considerations of use or usefulness had played a very minor role. Among the commended designs was one in which it appeared to be impos-



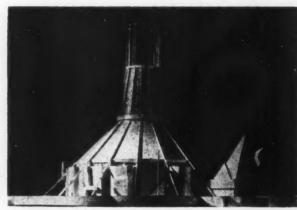


Presbyterian church of St. Columba at Glenrothes New Town (1961). Architects: Anthony Wheeler and Frank Sproson. A parochial center including church, two halls and manse. The plan has much in common with that of the Anglican parish church at Bow Common, though here the choir is placed to the east of the sanctuary and the position of the font reflects current Presbyterian practice

sible to use the high altar at all.

But it was the assessors' remarks about Frederick Gibberd's winning design which showed that, despite all that has happened during the last four years, the complex of the monument is still something that has to be reckoned with: that the romantic approach to church architecture still lingers on. The assessors seem to have been unaware of the fact that the plan of the winning design is based on what is now generally accepted to be an inadequate conception of the nature of the liturgical assembly; they were apparently untroubled by any misgivings in regard to the naïve symbolism of the immense crown of thorns or the implied doctrine that form follows dedication. It was sufficient that the winning design "powerfully expresses the Kingship of Christ": that "the visitor will be left in no doubt that this is a temple built to the honor of Christ the King." Clearly a great deal has still to be done before there can be any question of a widespread renewal of church architecture in Britain.

To sum up: while the prospect is far less bleak today than it was in 1957, while the radicalism which is so characteristic of the best secular architecture in this country has at last begun to extend to church design, and while the church at Bow Common provides a foretaste of renewal, the Liverpool competition is a sobering reminder that there are dangers as well as exciting possibilities inherent in the present rapidly changing situation. Although many of the revolutionary assertions of 1957 are well on the way to becoming the popular slogans of 1961, some of them are undoubtedly becoming pretty debased in the process. There is plenty of evidence to suggest that quite a few of the architects who have recently "gone liturgical" have been motivated solely by the desire to keep abreast of what is now commonly regarded as a new fashion, the latest swing of the pendulum. The adoption of a few fashionable planning formulas does not amount to a new approach to church architecture. What happens during the next ten years will depend very largely on our readiness "to be radical and to go back again and again to the program and to wrestle with its implications"; above all, on the recognition that the fundamental problems of church design are problems concerning the nature of the Church itself, the worship which is its characteristic activity, and the relationship between the Christian community and society at large.



Winning design for the new Roman Catholic cathedral at Liverpool by Frederick Gibberd (1960). A vast wigwam-like structure based on a circular plan with central altar, designed to accomodate 3000 people. The central tower, filled with panels of stained glass, is to be surmounted by an immense crown of thorns. It is instructive to compare this project with secular buildings by the same architect (e.g. at London airport). The possibilities inherent in the implied doctrine that form follows dedication provides a fascinating field for speculation

Les Eglises Nouvelles, by Joseph Pichard. Paris, Editions des Deux-Mondes, 1960, p.105

⁽²⁾ Introduction to Modern Architecture in Britain, by Trevor Dannatt. London, Batsford, 1959, p.27

⁽³⁾ Article by J. M. Richards in The Architects' Journal for March 28, 1957, p.459

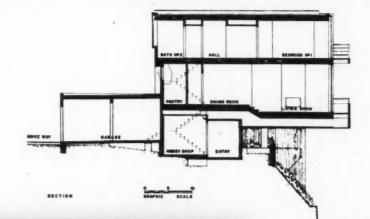
⁽⁴⁾ The Architectural Review, vol. CXXVIII no.766, p.400

⁽⁵⁾ Ibid.

A TOWN HOUSE ON A SPECTACULAR SITE

ARCHITECTS: Anshen & Allen
LOCATION: San Francisco, California

CONTRACTOR: Hugo Noller Jr., Inc. STRUCTURAL ENGINEER: Robert Dewell



George Knight



Town House in San Francisco

The wonderful views afforded by one of San Francisco's cascading sites, were very intelligently exploited in this three-level town house. The hilly location, well up from the highways and freeways, drops sharply to the south and east, and adjoins other buildings to the north. The plan reflects this by opening major rooms to the vistas, and by placing the house (with a blank wall) along the northern property line. The main living and sleeping areas are on the upper floors, with recreation and outdoor living areas nestled in privacy at the lower level. Each of the major rooms upstairs also has some access to the outdoors via a terrace or balcony. The upper floors overhang the ground floor to make the best use of the little available level land.





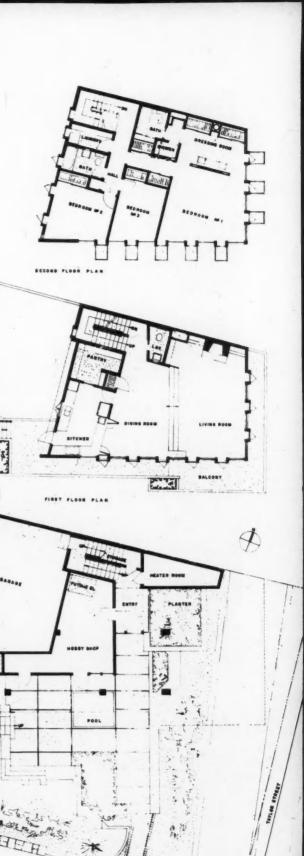




The middle, or "living" floor, is essentially an open plan, with a kitchen that can be used open or closed (note photo lower center). The dining area is set apart only by a slight change in floor level. The L-shaped fireplace wall includes built-in bookcases, hi-fi, and a niche for a piano.

The structure of the house is a combination of wood frame and steel columns and girders. Foundations are concrete. The exterior, which makes a design feature of the balcony doorways, is of stucco and wood trim, painted in three shades of terra cotta. The roof is 4-ply, with asbestos finishing felt, and has wool batts for thermal insulation. Windows have steel casements; plastic domes are used over interior bathrooms.



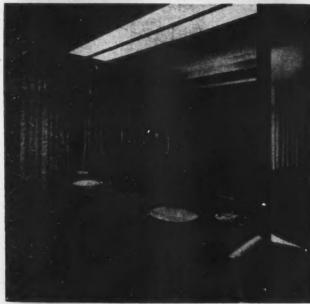


ARCHITECTURAL RECORD December 1961

GROUND FLOOR PLAT

George Knight







Town House in San Francisco

The kitchen (top photo) is fitted with walnut cabinets to match the living room paneling when folding doors are left open. The floor is vinyl tile, ceilings are plaster. Equipment includes built-in range, oven and refrigerator, stainless steel sink, garbage disposer and laminated plastic counters. The bathrooms (center photo) have ceramic tile floors and walls, hardboard ceilings. Counters are plastic, with built-in basins. Showers have thermostatic valves.

Bedrooms share the view through fixed glass panels (lower photo), flanked by doors opening on little balconies which punctuate the façade (curtains cover doors in photo)

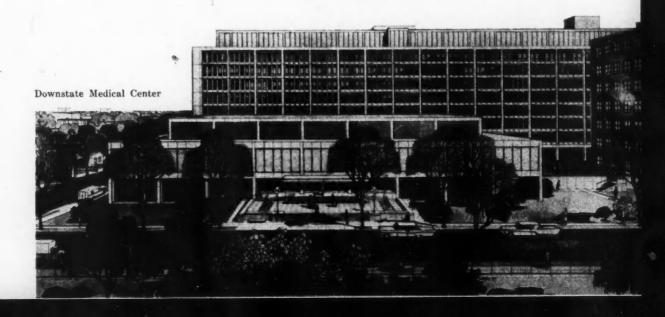
126 ARCHITECTURAL RECORD December 1961

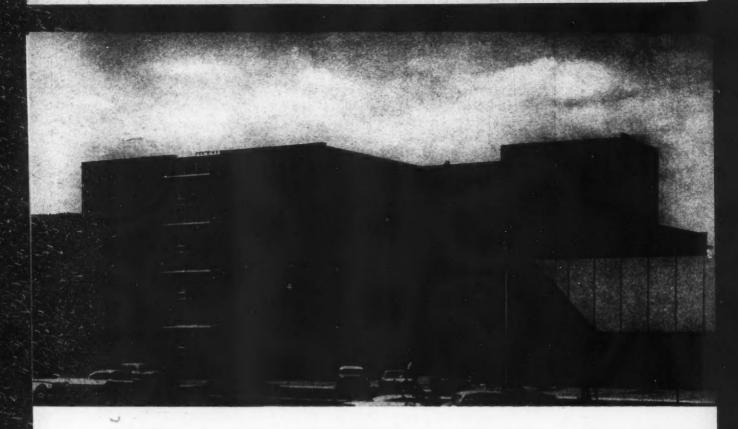
HOSPITALS

With so much going on in architecture these days, particularly in hospital architecture, it is increasingly difficult for busy architects and engineers to keep up with the times. The hospitals in the pages following should help to remedy this. Each of the examples shown was chosen because it gives some indication of important trends in hospital design. Several have intensive care or other specialized types of nursing units. One illustrates the trend toward inclusion of psychiatric units in general hospitals. Another combines architecture for healing with architecture for teaching and research. Still others are examples of newer ways of planning for effective nursing, for efficient handling of supplies, for improved patient rooms. All of the hospitals reflect a trend toward recognition of the therapeutic value of good architecture. All are attempts to cause architecture to assume a positive role in the healing processes.

Things are happening in hospital architecture, and one of the reasons is the great number of serious and capable architects and engineers working in the field. Another important reason is that these professionals are participating in a great boom in hospital construction. This opportunity seems likely to continue for some time to come. It now appears that the current year will set a record for hospital construction of some 43 million sq ft of new construction at a cost of about \$982 million. This represents an increase, over 1960, of approximately 20 per cent in sq footage and 18 per-cent in dollar value. For 1962, F. W. Dodge Corporation economists are predicting another great year for hospital architects, with volume and dollar values closely approximating the 1961 totals.

BUILDING TYPES STUDY 301





GENERAL CARE IMPROVED BY SPECIAL CARE UNITS

El Camino Hospital reflects the strong conviction of its architects that a hospital must not only function efficiently in all of its services but must also provide a pleasant environment for all who use it, from doctors and patients to kitchen staff. Its design accordingly gives equal emphasis to efficient circulation and clear-cut relationships between medical services, and to color, textures, and scale. Also an important factor in its design are the special patient facilities such as the intensive care unit, and its counterpart the pediatric special care unit, and the psychiatric unit for short-term care of acute psychiatric patients.

When it opened in September, the building provided 307 beds; when the fifth and sixth floors are added, the bed count will be raised to 450 and further expansion can be made by adding wings on the north and west. Space for expansion was provided but left unfinished in radiology and surgery areas.

El Camino's circulation sytem is based on a clear separation of the kinds of traffic it includes: supplies and food, received on the ground floor and processed there, are transported vertically to other floors without ever crossing the path of soiled or clean linen or other goods. Human traffic is also separated: visitors and ambulant patients use elevators which open into public corridors. Patients are conveyed from nursing floors to diagnostic and treatment areas by elevators opening into service corridors.

The psychiatric wing has a decidely residential air with cheerful colors and easy indoor-outdoor relationships. Day rooms and the large outdoor activity area offer opportunities for group activities with relatively unobtrusive observation of patients.

NAME: El Camino Hospital

LOCATION: Mountain View, California

ARCHITECTS: Stone, Marraccini & Patterson

Norman W. Patterson, Partner-in-Charge Dean L. Folker, Architect-in-Charge

STRUCTURAL ENGINEERS: Smith & Moorehead

MECHANICAL AND ELECTRICAL ENGINEERS:

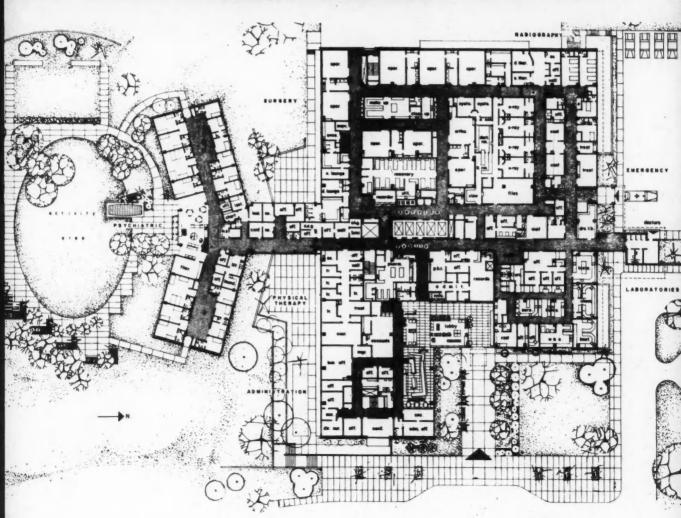
Buonaccorsi & Murray

LANDSCAPE ARCHITECTS: Osmundson & Staley

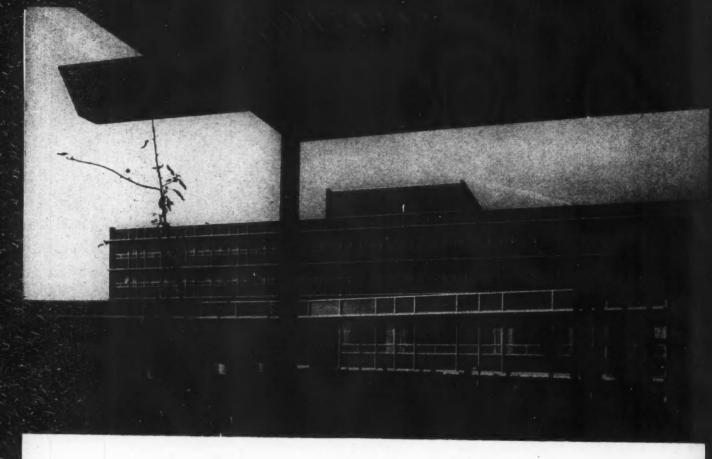
CONTRACTOR: Barrett Construction Company

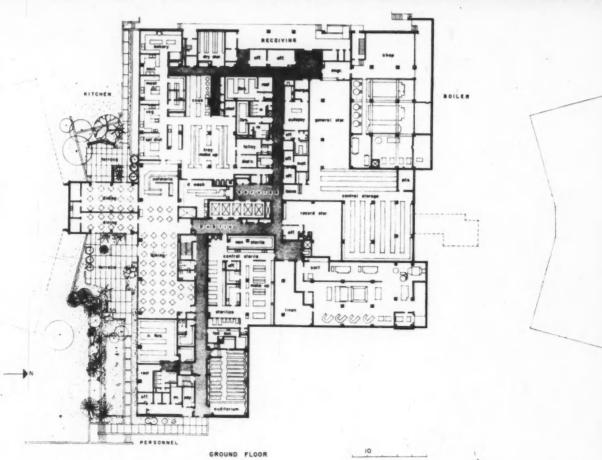


Karl Rick photos



FIRST FLOOR







El Camino Hospital

Second, third and fourth floors are nursing floors, each with a specialized area in addition to typical medical and surgical wing. Second floor has obsterical, maternity and nursery areas; third floor, pediatrics; fourth floor, intensive care. The difference in width between east and west wings on the third and fourth floors is explained by these specialized areas. All rooms have their own toilet facilities and so can be used for any level of intermediate or self-care. Each floor has a solarium for ambulant patient lounging.

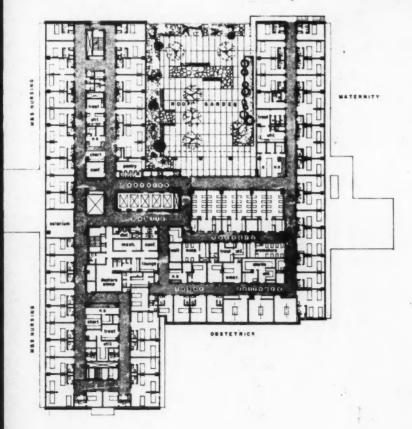
Although the double corridors used on nursing floors require more floor area, their convenience in minimizing distance from nurses' station to patients' rooms was a compensating factor. Circulation in the obstetrical and nursery area is based on segregation of the nursery area but permits a close relationship between delivery rooms and facilities for special services for newborn babies



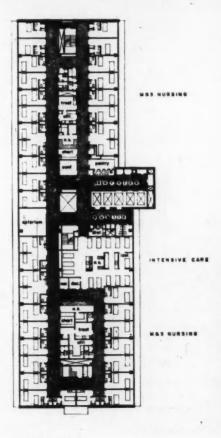
Lobby



Meditation Room



SECOND FLOOR



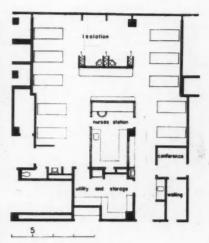
FOURTH FLOOR



Dining Terrace From Corridor



Psychiatric Activity Court From Day Room



Intensive Care Unit Plan

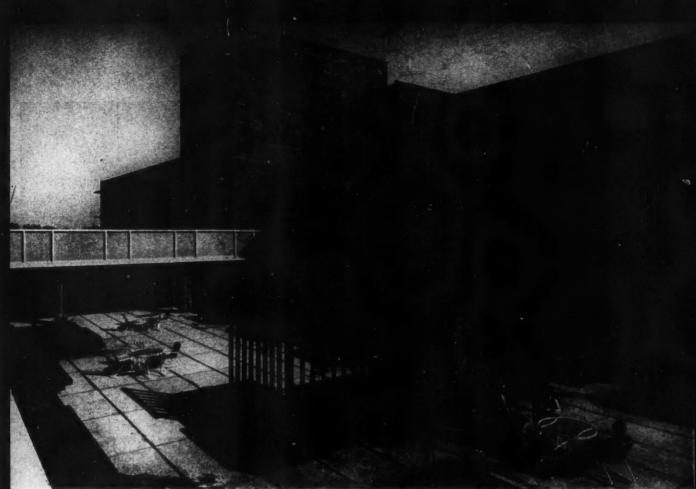
The intensive care unit is shown in the plan above and the illustration below. On the fourth floor, it provides for complete and continual supervision of 14 beds, and is equipped with oxygen, suction, and other life-saving emergency equipment. Pediatrics special care unit on the third floor, although different in plan, permits the same kind of complete supervision of beds. In all patient areas, including intensive care, environment is as little institutional as possible: furnishings, colors, views out of rooms and views along corridors help to make a pleasantly human experience of patients' hospital sojourn



Nurses Station



Intensive Care Unit



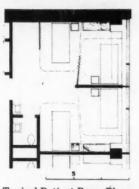
Second Floor Roof Garden

El Camino Hospital

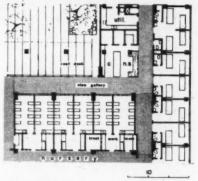
Nurses stations on each floor are located in the service core between the two corridors and open to them, permitting quick access to all rooms. Chart desk has specially designed rack which can be used from either side, avoiding possible conflict between doctors and nurses in using charts.

Rooms are designed so that bed locations can be staggered, permitting each occupant to have privacy (with curtains partially drawn) and at the same time a view out to the hills and pleasant surrounding country. Arrangement takes slightly more floor area but therapeutic value of view was considered to justify the additional floor area.

Nursery plan incorporates examining room so that doctors can examine babies without entering nursery; only nurses enter nursery. Viewing gallery is along corridor just inside roof deck



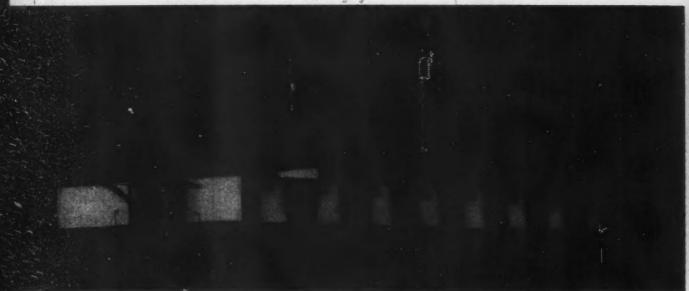
Typical Patient Room Plan



Nursery Plan



Typical Patient Room



Gerald Ratto photos

NEW PATIENT ROOM PLAN FOR UTILITY, CONTROL

Roseville is a small 101 bed, community hospital, yet it has a number of unusual features in unusual combinations. The most immediately apparent difference between this hospital and many others is the layout of the patient rooms. By placing toilet rooms on the outside walls, the architects have been able to gain several advantages: space ordinarily wasted in vestibules has been used for patient sitting areas near the windows, nurses' steps are saved in caring for patients, and better control is gained through the wider view of the room from the corridor.

Another interesting feature of the hospital is the arrangement of the central service cores in the nursing units. All plumbing in the cores is placed along the long center partitions of the cores, for maximum utility at lowest costs. Also of interest is the small intensive care unit of five beds, provided at one end of the main floor general nursing unit.

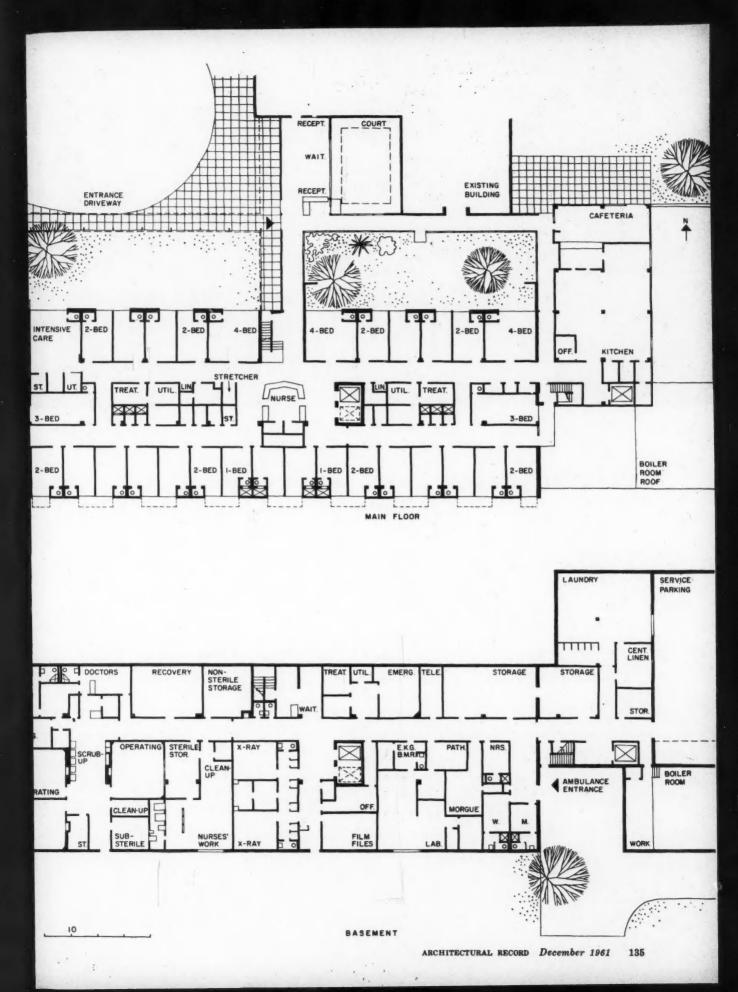
The current Roseville project is an addition of 67 beds to an existing hospital of 34 beds. When completed, the new portion of the building will house all of the hospital facilities except administration and the maternity and pediatric departments which will remain in the older section. The complete hospital will contain 52,000 sq ft, of which 37,000 will be in the new wing. The cost of the new work is estimated at a total of approximately \$1.6 million, including equipment and fees. Construction is reinforced concrete frame, with precast exposed aggregate panels on exterior, aluminum windows, metal stud and plaster partitions, and fluorescent lighting. The building will be air conditioned.

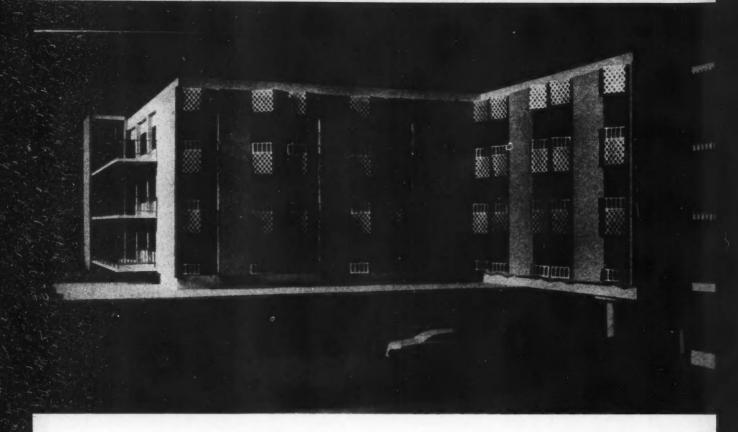
NAME: Roseville District Hospital LOCATION: Roseville, California ARCHITECT: Rex Whitaker Allen STRUCTURAL ENGINEER: Haluk Akol

MECHANICAL ENGINEERS: Kasin, Guttman & Assoc.

ELECTRICAL ENGINEER: Mel Cammisa CONTRACTOR: Campbell Construction Co.







SERVICE CORE IS FOCUS FOR NURSING UNIT

This hospital, which will eventually have a maximum capacity of 238 beds, demonstrates some further developments of the outside toilet patient rooms and service cores used by the architects in other hospitals they have designed. The new project shown here replaces the facilities now occupied by the French Mutual Benevolent Society, an organization of about 8000 members which has operated hospitals for over 100 years in San Francisco.

In this project, the central service core is quite complete, and contains highly developed clean and soiled utility rooms, just behind the nurses station. The central service corridor permits service traffic within the unit to be completely separated from that of patients, medical staff, and visitors. By placing the service core in the central arm of the T-shaped plan, patient room corridors can be double-loaded, reducing steps and circulation confusion. Patient toilet rooms are on the outside wall, resulting in better use of space. In addition, each patient room will have a private, solarium-like, sitting area near the window and overlooking the gardens below.

This hospital will be constructed of reinforced concrete with floor to ceiling glass in patient rooms. Windows and decorative exterior panels will be of aluminum. The hospital will be built in several stages. Ultimately, it will contain 103,700 sq ft of space, and is estimated to cost \$3.25 million total.

NAME: French Hospital

LOCATION: San Francisco, California

ASSOCIATED ARCHITECTS: Rex Whitaker Allen

and John Carl Warnecke

STRUCTURAL ENGINEERS: Smith & Moorehead

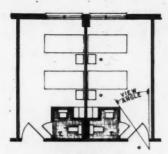
MECHANICAL & ELECTRICAL ENGINEERS:

Kasin, Guttman, and Malayan

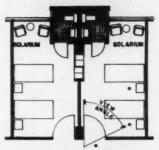
LANDSCAPE ARCHITECT: Lawrence Halprin

CONTRACTOR: Swinerton & Walberg





CONVENTIONAL TOILETS ON CORRIDOR WALL

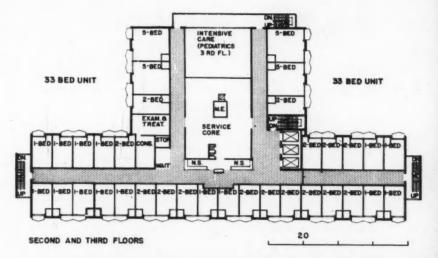


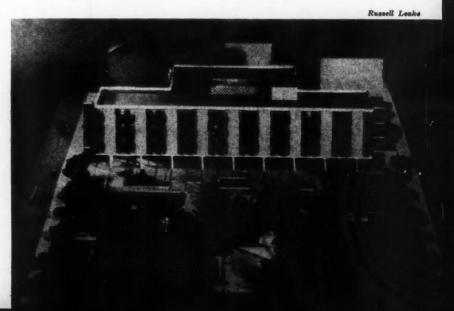
FRENCH HOSPITAL
TOILETS ON EXTERIOR WALL

2200	TOTAL AREA	2200
228	TOILET AREA	22"
198"	NET AREA OF ROOM	198
154'	CIRCULATION	.133'
78%	PERCENT OF CIRCULATION	_ 67%
151	DISTANCE TO FIRST BED	9'
21'	DISTANCE TO SECOND BED	15'
36*	MAXIMUM VIEW ANGLE	_64*
0	AREA OF SOLARIUM	_ 30°
• NURSES	POSITION FOR MEASUREMENT OF DISTANCES	

COMPARISON OF TYPICAL TWO BED ROOM

SCALE: 0 5 10







IMPROVED PATIENT CARE ON A SINGLE LEVEL

By utilizing the existing grades of the site, the architects of this little, 66 bed community hospital were able to place almost all of the patient services, including emergency, on one floor. As it turned out, it was possible, because of the grades, to give the emergency suite a second floor, ground level entrance at the rear, yet provide nearly all of the ground floor areas with windows.

Through close attention to the details of planning, the emergency, surgical, obstetrical, and x-ray departments were grouped together in one end of the building, around central sterile supply. Each of the departments is related to others important to its operation, yet none is incorrectly related, to any appreciable extent, to departments from which it should be separated. Nursing units are varied, some having double-loaded corridors, while others are adjacent to single-loaded corridors around a central nurses station. The net result of this is that a variety of nursing situations may be set up according to the amount of nursing care particular patients may need.

This hospital was planned for eventual expansion from the present 66 beds to a total of 110. All service facilities were planned for the final size of the building. The present structure contains 59,000 sq ft and cost approximately \$1.4 million, including equipment and fees. The building is of steel frame, with brick and aluminum-framed, porcelain enamel and glass curtain walls. Interior partitions are metal stud and plaster.

NAME: Highland Hospital LOCATION: Beacon, New York

ARCHITECTS & ENGINEERS: Cannon, Thiele, Betz & Cannon

ELECTRICAL CONSULTANTS: Walter Sherry & Assoc.

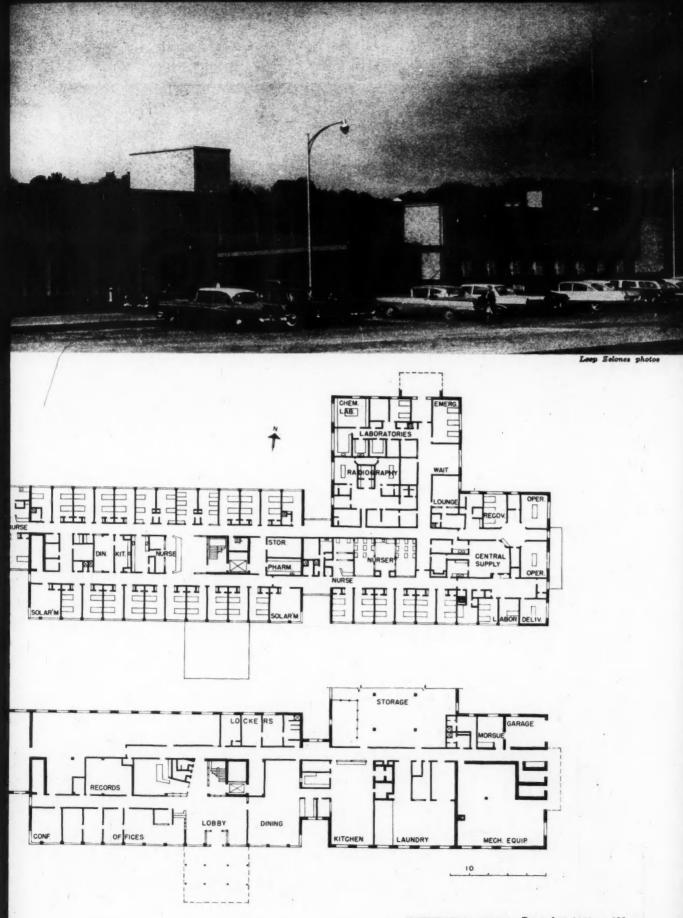
CONTRACTOR: Chiappinelli-Marx, Inc.



FIRST FLOO



GROUND FL





Lobby



Central Nurses Station



Operating Room



Operating Suite Vestibule



Central Sterile Supply

Highland Hospital

Lobby: located on the ground floor, the lobby permits patient and visitor entry to second floor via stairs shown in the background. The service entrance is also on the ground level, at the end of the building. Because of the sloping site, the emergency and doctors entrance opens on grade at the rear of the building on the second floor.

Nurses Station: the main nurses station shown is centrally located between two nursing unit corridors. It affords good control of patients, services, and visitors. A small dining room and kitchen, just behind the nurses station, is used for ambulatory patients' meals. Bed patients meals are prepared in the main kitchen on the ground floor.

Operating Rooms: two operating rooms and a recovery room are provided in the surgical suite. These are grouped around central sterile supply and are so placed that space is provided between them for washup. Close by, but separated from surgery, are the x-ray suite, the laboratories, the emergency suite and the waiting room.

Central Sterile Supply: placed between the surgical and obstetrical suites, the surgical supply area is so arranged that supplies can be delivered directly to either of the other suites, quickly and efficiently



Waltanna Stenera mhotos

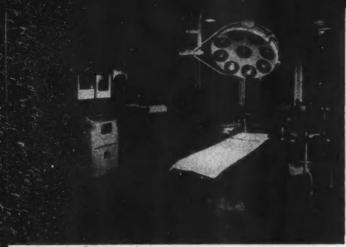
SIMPLIFIED PLAN FOR ECONOMY AND EFFICIENCY

NAME: St. Frances Xavier Cabrini Hospital
LOCATION: Melbourne, Australia
ARCHITECTS: Stephenson & Turner

This general hospital is owned and operated by the Missionary Sisters of the Sacred Heart. The plan is straightforward, efficient, and comfortable. It stems from a few major concepts carried out in good form. All services, including tray service for food, are centralized. Nursing units are on a simple, double-loaded corridor plan, with toilet and bedpan washing facilities for each patient room. Nurses stations have service core facilities adjacent. These concepts have been expressed in their simplest terms to produce a hospital that functions well.



ARCHITECTURAL RECORD December 1961



Operating Room



Laboratory



Nursery



Nurses Station

The design of this 137 bed hospital in Australia is basically L-shaped with nursing units in the long arm and major services such as surgery, emergency, and obstetrics in the shorter arm. With this scheme, it was possible to stack all of the areas that require particular types of mechanical and electrical equipment, thus simplifying placement of vertical chases. Since the nursing units are not air conditioned, but the other areas are, the mechanical equipment room was placed on the top floor directly over the areas it serves, thus simplifying duct runs and lowering costs.

The structure of the hospital is reinforced concrete frame on spread concrete footings directly below the basement floor slab. Floor construction consists of continuous flat concrete slabs with hollow block infilling. By introducing horizontal ducts at the junction of floors and columns, the placement of vertical ducts was facilitated. The architects found that this structural system reduced the cubic contents of the building and enabled them to place ducts and piping at each floor level with ease and economy. Exterior walls are brick; interior partitions are lightweight concrete block, mostly plastered and painted. The approximately 91,000 sq ft of the present building cost the equivalent of about \$1.8 million, including architects' fees. An addition has been planned for 75 beds.

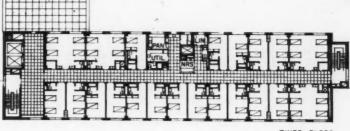


St. Frances Xavier Cabrini Hospital

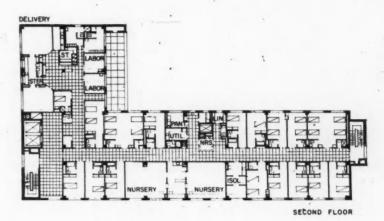
The main floor of this hospital is mainly devoted to administration, emergency suite, and the chapel. Radiology is made part of the emergency area. The kitchen, central sterile supply, laundry, and pharmacy are located in the basement. The supply room and pharmacy are directly connected with nursing stations above by dumbwaiters. Also in the nursing stations are laundry chutes to basement and food service lifts.

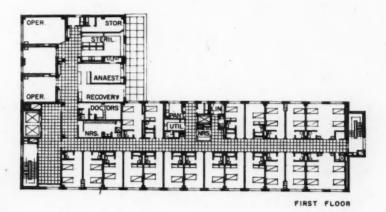
The food preparation, serving, and dishwashing cycles were closely studied and provisions made for efficient handling. Similarly, flow diagrams were made of the laundry and supply cycles, and these services planned into the hospital for efficiency and saving of time.

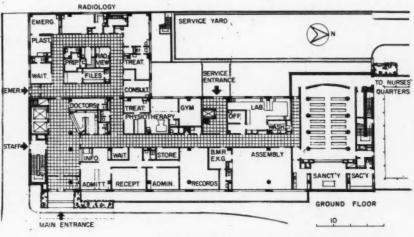
Nurses stations are provided with central linen storage rooms, janitors closets, and pantries with refrigerators. All three operating rooms are served by one sterilizing room, in order to gain economies in construction and better control



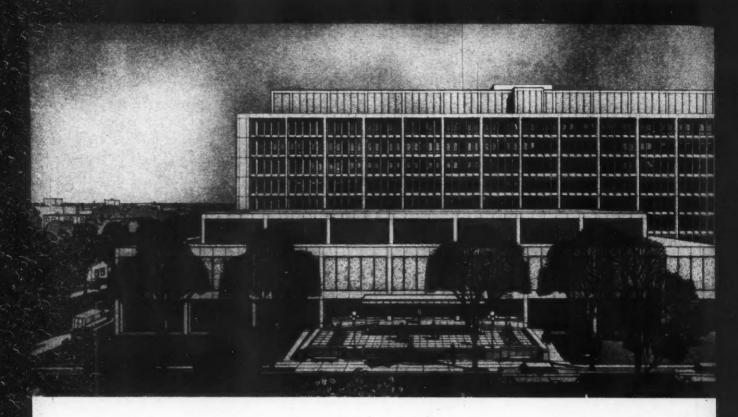
THIRD FLOOR











HOSPITAL FOR HEALING, TEACHING, AND RESEARCH

The combination of good architecture with the solutions of the complex problems of a teaching hospital resulted in this design for the Downstate Medical Center. In this building, the architects have attempted, with considerable success, to interweave architecture for healing with architecture for learning and for clinical research. The building, along with the existing basic sciences building to which it will be attached, will eventually provide facilities for 350 bed-patients, approximately 110,000 outpatient visits a year, and for an enrollment of 800 medical students.

The basic scheme of the building is an eight-story hospital tower, with clinical research facilities in one end and in a wing connecting the tower to the basic science building. Research activities are, for the most part, located on the nursing floors to which they relate, medical research on the medical nursing unit floor, surgical research on the surgical nursing floor. The architects feel that a better solution would have been a similar floor plan with all hospital facilities in one wing, all research in the other, but the limits of the site prevented this kind of solution.

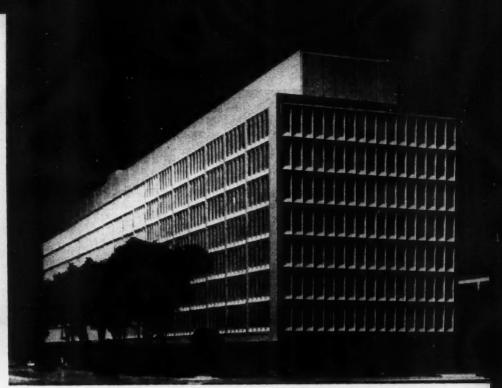
The new building will contain approximately 600,000 sq ft and its estimated cost is \$20 million. About one fourth of the floor area will be research. Nursing units will have 20 beds and there will be four units per floor. The nursing team for each unit will consist of one registered nurse and two nurses aides or student nurses. Exterior walls will be precast concrete with exposed marble aggregate. Windows will have low, 9 in. stools, to facilitate the bed-patients' views.

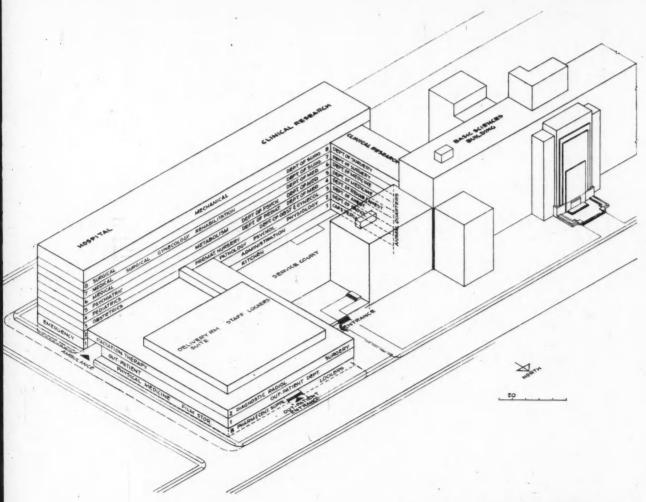
NAME: Downstate Medical Center LOCATION: Brooklyn, New York

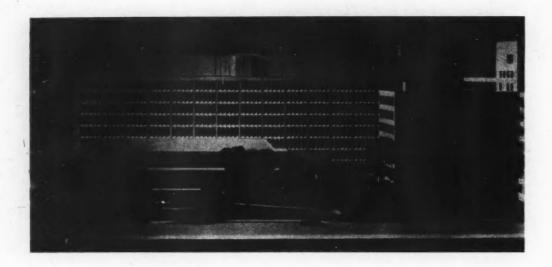
ARCHITECTS: Urbahn, Brayton and Burrows



Rendering by Helmut Jacoby



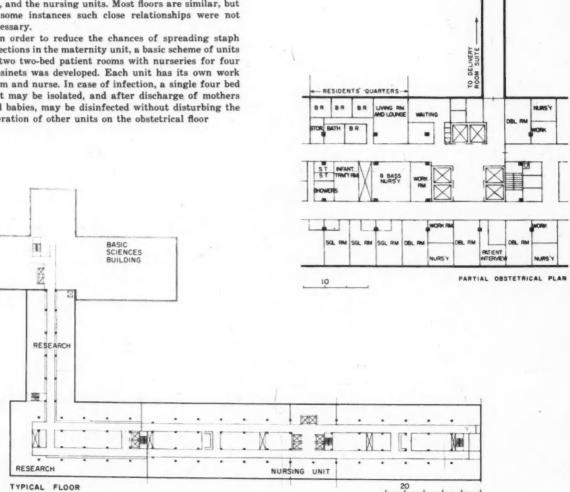




Downstate Medical Center

The typical floor plan indicates the relationships between the research facilities, the basic sciences building, and the nursing units. Most floors are similar, but in some instances such close relationships were not necessary.

In order to reduce the chances of spreading staph infections in the maternity unit, a basic scheme of units of two two-bed patient rooms with nurseries for four bassinets was developed. Each unit has its own work room and nurse. In case of infection, a single four bed unit may be isolated, and after discharge of mothers and babies, may be disinfected without disturbing the operation of other units on the obstetrical floor



Architectural Engineering

Model Tests for Complex Structures

Mathematical analysis of complicated and unusual structural shapes can be exceedingly tedious and time consuming. With shells, space frames and all their cousins being very much in demand today, engineers are looking for ways to make model analysis more practical and meaningful in determining deflections and stresses. Although models still exist of some of the great Renaissance buildings, chances are that their many purposes was to aid builders in devising means for constructing the structures.

A short history of model analysis and the development of present methods are presented in a paper by Henry J. Cowan, Professor of Architectural Science, University of Sidney, in the proceedings of the 1961 Australian Building Research Congress. Cowan points out that 40 years ago a method was developed by George E. Beggs in which minute deflections of models under load were measured by microscope—a rather laborious procedure. Models have been used much more often, Cowan observes, in the design of dams, where construction costs are far higher than for buildings, and in the design of aircraft structures, where savings in weight have been essential. Countries having facilities for model testing include Italy (Nervi tested a model as early as 1935), Portugal, Spain, France, England and Russia. Currently there is interest in the United States at several of the larger engineering schools. Cowan's paper briefly describes model investigations done in his laboratory on a reinforced concrete folded plate dome and on a 36-story steel frame in which wind load was particularly important. Example of a U. S. model test is discussed on p. 152.

Less Theory, More Experiments

A growing dependence upon mathematics and theoretical methods as sole solutions to complex engineering problems has come under fire by Dr. Max M. Frocht, professor of mechanics and director of experimental stress analysis at the Illinois Institute of Technology. When the shape of an element and the load upon it are complicated, theoretical methods alone are not sufficient for analysis, according to Dr. Frocht, and recourse must be made to experimental methods. Nowadays, he says, it is much easier to find well prepared theoretical analysts than competent experimentalists.

A Report on Canadian Building Research

Building Research 1960 is the first of a series of annual reports upon the work of the Division of Building Research of the National Research Council of Canada. A major activity last year, described in the report by Robert F. Leggett, Director, was revision of the National Building Code of Canada which was first published in 1941, and first completely revised in 1953. About half of the urban population of Canada lives in municipalities that use one of the earlier editions of the code in some way. Announced also in this report is the start of a new service, Canadian Building Abstracts which is a part of a slowly but steadily developing international building abstract project stimulated by the International Council for Building Research, Studies and Documentation (CIB).

New Directions in Power Generation

"It is entirely conceivable that there will be a period in our future when central power stations will give way to individual fuel cells in every home," said James D. Flynn of the Cincinnati Gas & Electric Company at a symposium on fuel cell developments and applications during the Fall General Meeting of the American Institute of Electrical Engineers. The fuel cell has no moving parts since chemical energy of a fuel is converted directly into electrical energy. If current interest in their research is maintained, it is likely that fuel cells will serve as power sources in special applications within the next five years, Flynn averred.

This Month's AE Section

INTEGRATING MECHANICAL SYSTEMS: A DESIGN APPROACH, p. 148.

MODEL TEST PREDICT SPACE FRAME BEHAVIOR, p. 152. TIME-SAVER

STANDARDS: Floor Framing, p. 155. BUILDING COMPONENTS: Sound Systems, p. 161. Products, p. 163, Literature, p. 164.

INTEGRATING MECHANICAL SYSTEMS:

A Design Approach

The author gives a procedure for better relating mechanical-lighting-structural systems, describes an experiment using radiant cooling for more efficient pick-up of heat from lighting, and gives a method for quick calculations in mechanical design.

by Gershon Meckler

Meckler Engineering Company

Consulting Engineers

Toledo, Ohio

Architectural and engineering design factors must be related quantitatively to provide a proper frame of reference for intelligent decision making. The occupancy requirements created by the modern office building, the research laboratory, the hospital, the multi-purpose school—each with specific requirements for air conditioning, modular flexibility, higher lighting levels, etc.—demand more space planning and evaluation of building systems and products than ever before.

With a wider choice of new materials and products, the architect finds design decision making more complex. To state the problem another way, the architect must find a basis of relating the practical significance of architectural design factors as they effect the selection of components and systems by the mechanical, electrical, and structural engineers and vice-versa. The variables of one technology must be related with variables of all associated technologies before economic criteria for decision making can be applied.

Prior to completion of a building design in which integration of building systems is to have some significance, two conditions must be satisfied:

- All the design variables must be properly related.
- The interacting system energies must be evaluated.

The following outline is presented to indicate the sequence of steps that the architect should take with his engineers to successfully integrate a building design:

- Ascertain the function which the occupant—building combination is to perform.
- Determine the requirements and restriction to which the design must conform.
- Determine the conditions under which the occupant—building combination must operate.
- 4. Determine the characteristics of the necessary systems which may

- be a part of the building.
- Block out alternate systems which will perform the required job.
- 6. Within each of the proposed designs, examine the appropriateness of selected components in terms of:
 - a. Functional character.
 - Compatability with design restrictions.
 - c. Reliability under expected operating conditions.
- Select the most promising design and proceed with preparation of detailed drawings and specifications.
- Design necessary system components and means of controlling operating conditions arising as a result of the total building design selected.
- Refine the total designs in terms of:
 - a. Economy of construction.
 - b. Efficiency of operation.
 - c. Ease of maintenance.

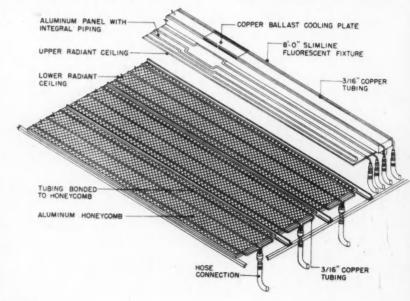
SYSTEMS DESIGN TECHNIQUE: An example

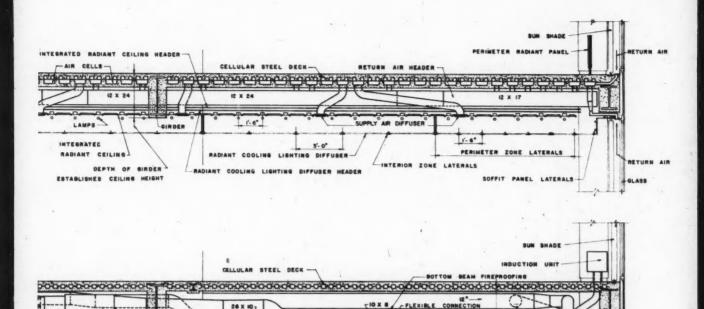
The use of the systems approach as a practical architectural and engi-

neering design technique will lead to a significant contribution toward achieving the total integration of environment with structure. The interaction of building systems requires that successful building ceiling and floor products, which serve as components of building systems, be designed and developed as a function of systems design.

The panel air system illustrated in this article is an example of how structural, mechanical and electrical components can be integrated. It is a split air-water system which removes the heat load from the conditioned space by radiant and convective cooling. Humidity is removed independently by chemically dehumidifying outside air. The system consists of a radiant ceiling located in interior and perimeter spaces and a completely unzoned air distribution system operation at air calculation rates of approximately four air changes per hour.

The panel air system utilizes cellular floor as an integral component of the mechanical-structural-electrical and lighting system. As a structural member, cellular air floor is a

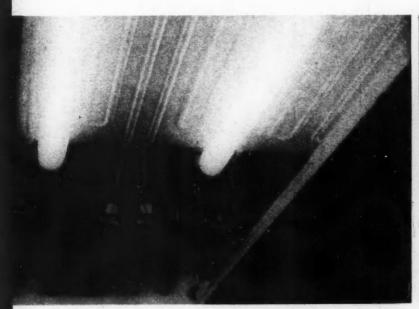




RADIANT COOLING SYSTEM COMPARED WITH CONVENTIONAL DESIGN

10 X 28

Drawing at the top illustrates the components of an integrated radiant panel—air system. Radiant cooling panels in the vicinity of the fluorescent lamps pick up heat from the lamps directed upward; radiant heat from the lamps directed downward is captured by the radiant cooling lighting diffuser. The result is that only minimal ductwork is required as compared with a conventional system shown in the lower drawing. Depth of the floor-ceiling system in the radiant panel—air system is governed by the depth of the girder. In the conventional design, sufficient space must be provided for fitting in the various duct systems



ELECTRICAL RACEWAY

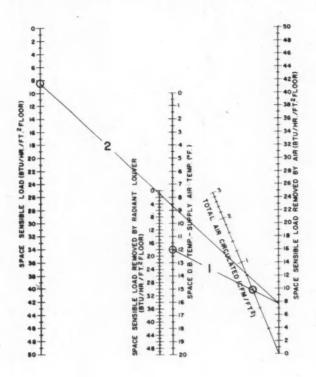


EXPERIMENTAL PANEL COOLING SYSTEM

The sketch at left defines the various elements in an integrated panel cooling—lighting system. As lighting levels go higher, more efficient means need to be found for getting rid of the heat. In the system shown here, all but about 9 per cent of the heat from the lamps can be removed by the upper and lower radiant panels

DESIGN OF A RADIANT LOUVER BY NOMOGRAPH

All of the known factors are circled in the nomograph charts. Lines are drawn through them in the succession shown by the large numbers to end up at number 7, the heat removed by coolant in a radiant louver

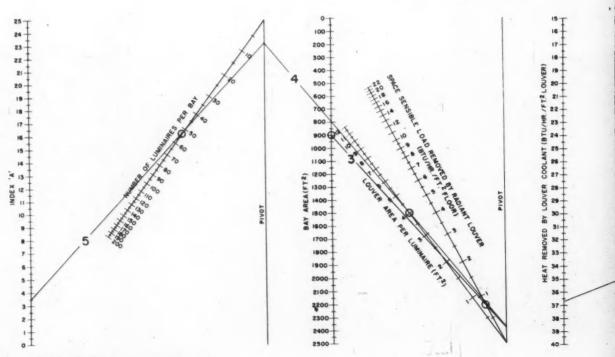


load bearing subfloor. As a component of the building electrical power system, it serves to provide raceways for power, lighting, signal, telephone and security services. As a component in a mechanical system it serves to provide uniform distribution of supply and return air to the conditioned space.

Inherent in the concept of integration of building systems is the ability of the systems designer to select components and arrange them as required in accord with good design practice without restricting the building architecturally. To do this practically, our firm has developed a technique which utilizes nomographs permitting simultaneous evaluation of the variable design factors established by:

- 1. The architectural designer.
- 2. The climate and indoor comfort requirements.
- 3. Occupancy requirements.
- 4. The mechanical and electrical systems designer.
- 5. The energy requirements of the associated building systems.

What is required is a more effective method of evaluating and optimizing the design variables of interrelated systems as they affect each other. Where several variables are subject to change and with the magnitude of such changes undeter-



mined, nomographs provide a useful method to avoid repeating arithmetical calculations, while permitting a study of simultaneous changes in several design variables.

NOMOGRAPHS

Nomographs can be prepared to aid and assist the architect and mechanical systems designer in making his material selections and optimizing building energy requirements. Nomographs are geometrically constructed. They represent the mathematical equations which relate quantities known or selected with design factors required for systems evaluation. The effects of changes in all of the major mechanical system design variables can be represented in relatively compact nomographs. Used as described, nomographs:

1. Show the effect of simultaneously changing three or more design variables upon equipment selection and/or arrangement.

2. Eliminate interpolations between several tables or graphs, and minimize design time without loss of a reasonable degree of accuracy.

To demonstrate the application of the nomograph as a design tool let us consider the following problem: Recessed luminaires utilizing single F48PG17/CW lamps are to be used to provide a 150-footcandle installation. Determine the quantity of heat air changes per hour. All variations in space temperature shall be controlled directly by the luminaire radiant louver. Occupancy requirements are as follows:

a. One person/75 sq ft.

b. 1.5 watts/sq ft for equipment The mechanical designer supplies the following information: The space sensible load (aside from lighting) is

Btu/
hr-sq ft
3.3
5.2
8.5

Applying the lumen method to determine the number of luminaires required to provide 150 footcandles at the working plane, the electrical designer supplies the following information:

- a. Number of luminaires = 54
- b. Luminaire spacing = 3 ft 4 in.

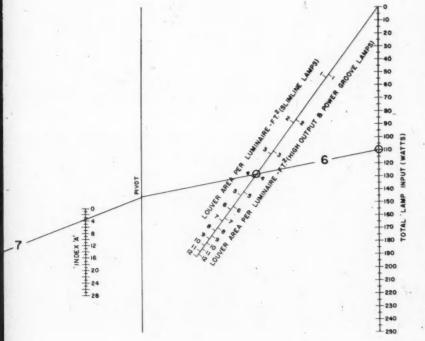
that must be removed by water coolant in the radiant louver of each 4-ft integrated recessed luminaire to provide space cooling. (This system is similar to that shown on the foregoing two pages.) The interior office space to be illuminated is a 30- by 30-ft bay and the desired conditioned space temperature is 75F. The unzoned air temperature for all building occupancy zones is established at 63 F and the air circulation rate is 4

on centers

- c. Total lamp watts input per luminaire = 110.
- d. Louver area per luminaire = 4 ft sq.
- e. Total electrical input to lighting system = 8.7 watts/sq ft (29.7 Btu/Hr-ft2).

Referring to the nomagraph, all of the known or selected system design variables (designated by circles) are located on the appropriate scales. Solution is accomplished by connecting with straight lines each scale of the nomograph computer in the order indicated by circled numbers. The solution of each section of the nomograph computer requires that any two of the three variables connected as illustrated be known or selected. Determination of the third variable is automatic and is used in the solution of the scale adjacent to it, etc., until a complete path is made connecting all these scales, pivots and indexes of the nomograph computer in the order as illustrated by the line numbers. At number 7 we see that the heat removed by radiant louver at the design load = 36.7 Btu/hr-ft2 of louver or 147 Btu/hr per luminaire that must be removed by the mechanical cooling system.

The nomograph illustrated shows the effect of variables normally used in the calculation of space illumination levels on the cooling capability of the combined air convection and radiant cooling mechanical systems. The requirements of space lighting and cooling are determined simultaneously and various luminaires are evaluated from a lighting as well as a cooling capability. The area available for viewing the space load depends upon the number of luminaires required. The lighting load removed by the louver is related directly to the heat equivalent of electrical energy required to operate the lamp sources and the distribution of conductive, convective and radiant energy leaving each lamp source.



SUMMARY

The use of the nomograph as illustrated will help establish the framework for decision making from which the selection of the associated building systems is optimized, and the use of system energies is conserved. Before integration can be achieved, however, the criteria for system design must be established by the architectural designer.

MODEL TESTS PREDICT SPACE FRAME BEHAVIOR

by Kenneth C. Naslund

The author worked on the structural analysis described in this article when he was chief structural engineer of Skidmore, Owings & Merrill in Chicago. He is now a partner in the structural engineering firm, The Engineers Collaborative.

Conventional methods of analysis for this space frame would have been either too tedious to run through or overly conservative in results. With a technique rarely used in this country, the designing engineers performed load tests on a plastic model and confirmed the results with a steel prototype. Upjohn Company General Offices, Skidmore, Owings & Merrill, Architects and Engineers

The roof structure of the Upjohn Company office building consists of a series of shallow steel trusses joined to form a space frame.

The design of this type of structure by conventional means is very time consuming. A stress analysis by means of a scale model was selected as the best approach to design. Full-scale field tests were conducted on a 66- by 66-ft prototype to spot check the model test results.

The development of a space frame as a solution for the complete architectural problem involved many factors:

1. The structural system was required to follow the basic module of the building (6 ft square).

2. It was to provide double cantilevers at exterior and interior corners of the building and its many courtyards.

3. The framework was also required to support individual pyramidal domes to form a modulated ceiling, expressing the nature of the structure.

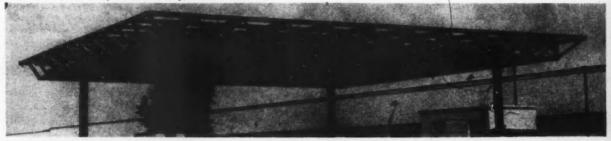
4. The space frame had to be economically designed while satisfying the requirements of design stresses, fabrication, shipment and erection.

Column centerlines are 48 ft apart in each direction with every other bay carrying a 66- by 66-ft unit which provides cantilevers of 9 ft over the centerlines to support the 30- by 30-ft and 18- by 30-ft suspended span units. Courtyards, with the exception of the largest, are formed by the omission of 30- by 30-ft and 18- by 30-ft suspended span structural units.

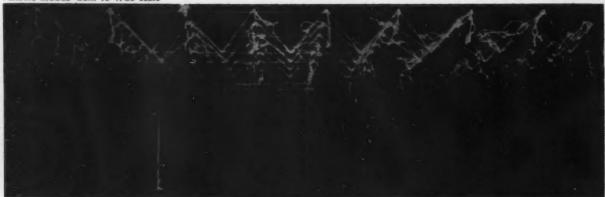
The use of conventional methods of analysis for the 66- by 66-ft units was ruled out early because the highly indeterminate nature of the structure would have required an excessive amount of engineering time to solve the many different edge loading conditions on the units. Two possible approaches might have been:

1) a conservative analogy to a plate, or 2) a very conservative estimate of the distribution of stresses in the system by coefficients such as those recommended for use in the design

STEEL PROTOTYPE-66 by 66 ft, 3-ft deep, columns 48 ft e-c



PLASTIC MODEL—built to 1/20 scale



of reinforced concrete flat plate systems. These choices were not satisfactory because they meant a waste of material and a poor engineering approach to solution of the problem. It was decided therefore that the analogy to a plate would be used only to obtain the probable distribution of moments in the system. Steps taken in the structural design were:

 A small-scale plastic plate flexible enough to give easily measured deflections due to scaled down loads was constructed.

Deflections were measured when this plate was subjected to its equivalent uniform load and various edge loadings.

3. From the deflection measurements design moments, preliminary design stresses and member sizes were established. [This procedure is not illustrated nor discussed further in the article.]

4. A model of the three dimensional structure at 1/20 linear scale was built. Stress and deflection measurements were taken.

The scale model was built of acrylic plastic and represented the 66-ft square cantilever unit. It consisted of 779 individual pieces scaled down proportionately from the preliminary member sizes established from the

plate loadings. To shape the model member the same as the structural shapes selected would have been an expensive and unnecessary refinement because the primary stresses in the structure were the direct stresses (tension and compression) with secondary bending stresses consequential only in the immediate vicinity of the columns. Thus, model members were made rectangular.

Because of the geometry of the structure, it was determined that instrumentation on one-half of a quadrant (or one-eighth of the unit) would provide complete design data. Therefore, the more important members in this portion of the unit were instrumented with SR-4 strain gages placed so that both direct stresses and bending could be determined.

The model was tested first with a uniform load and resulting stresses noted. Then a single load was applied at each panel point (every 6 ft) around the perimeter and stresses recorded for all the instrumented members for each of the load positions. With this data, influence diagrams giving stresses for point loadings to simulate weight of suspended spans were developed. Values from these diagrams combined with stresses due to uniform load furnished enough in-

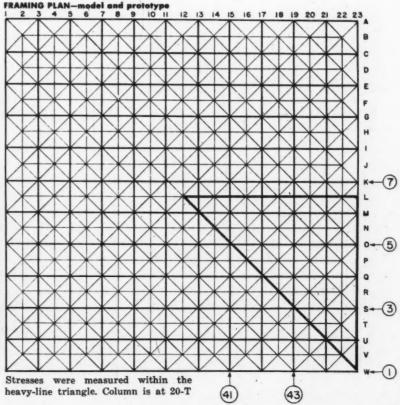
formation for a complete design.

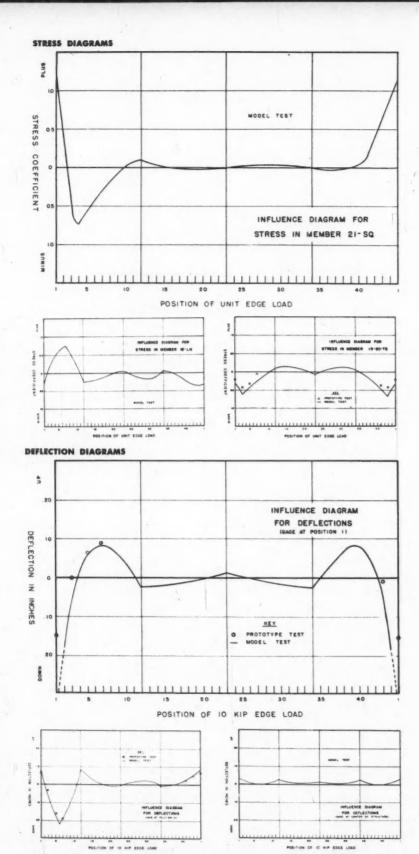
Deflections were also measured on the scale model under uniform load at (1) the center of the bay, (2) the edge at midspan between columns, (3) the column centerline at midspan, and (4) the corner. These values for deflection were verified during the load test on the full scale mock-up.

Typical influence diagrams for deflections and direct stresses derived from the scale model tests are shown on page 000. The ordinates on the influence diagrams for stress represent the direct load in the member resulting from a unit load applied at a position on the ordinate. The numbers along the bottom of the diagram designate the load positions. The sign convention used was positive for tension and negative for compression.

Fortunately, this project, because of its unusual architectural features, required the construction of a full size mock-up of one bay (including the roof structure) to study details of construction. Since it presented a wonderful opportunity to check the model stress analysis, a load test was conducted following a procedure similar to that used on the scale model. Eight members were instrumented with SR-4 strain gages and a







Stress diagrams indicate the relative magnitudes of stress as a unit load is moved around the periphery of the frame. A 10 kip load at point 5 should produce a 7.5 kips compression in member 21-SQ. Deflection diagrams are given here for 10-kip loads at positions 1, 4 and at the center of the space frame

10 kip load applied separately at each of six edge panel points. (These are identified by the circled numbers on the drawing, page 153.) The resulting stresses checked with those predicted from the scale model influence diagrams.

While good agreement was obtained between the scale model and the full size mock-up data for chord members, the diagonals over the column did not have such good agreement. This was attributed to the rather substantial bending which results in these members under load. Full scale mock-up members were structural angles and tees, and those used on the scale model were rectangular in cross section. It is apparent that for any future model analysis where bending is likely to occur in combination with direct stress, the physical shape of the members and the results will have to be subject to critical examination prior to their use for final member selection.

In addition to considerable bending being indicated in the diagonal members directly over the columns, some bending was observed in most of the other members, but this was of minor significance except for the bottom chord members immediately adjacent to the column.

While this method of structural model analysis is basically suited to analysis of truss type structures with direct stresses, it is presently being used for shell type structures as well as building frames. This method could be used to analyze, or check the analysis of special building frames. It undoubtedly produces a much clearer and more complete picture of what various combinations of loads produce in the way of stresses in a complete structure and in a shorter time.

Fabrication and Erection

Steel erection and fabrication of the 1200-ton space frame was performed by Whitehead & Kales Company of Detroit. It consists of over 200 factory-fabricated trapezoidal, triangular and parallelogram sections shipped 150 miles by truck to the site. Each truck shipment consisted of two or three space frame sections along with beams and columns. At the job site, a series of false-work beams were bolted for temporary alignment and positioning of the space frame sections. Most field connections were we'ded, although 49,000 high-strength bolts were used.

FLOOR FRAMING SYSTEMS: 1

by JOHN G. MASCIONI, Assistant Professor, Pratt Institute, Structural Engineer

Basic floor framing schemes are illustrated and described on the following pages. For comparison, typical designs have been developed for each scheme. Four bay sizes, 20 by 20 ft, 20 by 24 ft, 20 by 28 ft, and 20 by 32 ft, have been investigated to note the relative effect of span length on the depth of construction. In general, the average area of the four bays, 520 sq ft, may be considered larger than the economical size bay for wood construction and solid concrete floor systems; approximately economical for the ribbed concrete floor systems; and smaller than the economical bay for steel and prestressed concrete floor systems. Design is based upon a total superimposed load of 60 lb per sq ft. All dead loads with the exception of the structural floor should be deducted to arrive at the effective live load. As the key plan shows, equal spans are assumed on the sides of the bay investigated. Beams, therefore, are designed to support loads from adjacent bays. Design of the spandrel beam, which depends on all the various construction and architectural re-



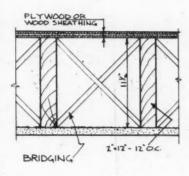
quirements, has been omitted. Reinforced concrete design is based upon 3000 psi (f_c') concrete. The allowable stress in steel for both steel framing and reinforced concrete is 20,000 psi.

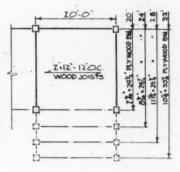
1) Wood Joists

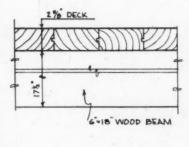
A wood-framed structural floor used primarily for residences and one-story buildings. Deflection limits its application for long spans. It is used frequently with wood or masonry wall bearing construction. Design of joists is based upon an E = 1,650,000 psi and f = 1200 psi. Supporting the joists are plywood box beams with reinforced plywood webs for the heavy shear loads. An adaptation of this system is the stressed skin panel in which the strength and stiffness are increased considerably by glue-nailing plywood to the top and bottom of the wood ioists.

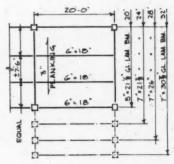
2) Wood Plank and Beam

The depth of floor construction is considered the thickness of the decking which is usually a nominal thickness of 2 in., 3 in., or 4 in. Decking can be either planking laid flat or laminated lumber laid on edge and side nailed. The underside of the decking is usually left exposed. Minimum depth of construction, an important advantage, produces large deflections and limits the application of this system primarily to roofs. Random length planking in which only one end bears on a support is the most economical. Design is based upon an E = 1,760,000psi for wood purlins and 1,800,-000 for glue-laminated girders. In smaller buildings a post could be placed under the purlins thereby eliminating the gir-







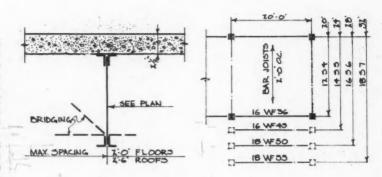


FLOOR FRAMING SYSTEMS: 2

by JOHN G. MASCIONI, Assistant Professor, Pratt Institute, Structural Engineer

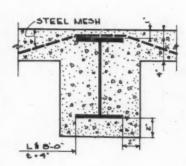
3) Open Web Steel Joists

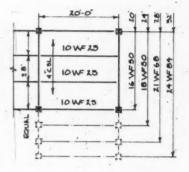
This floor system is widely used and is very economical for light occupancy loads. In addition to the poured concrete slab shown here, it is employed with wide variety of decking and planking commercially available. Open webs facilitate the installation of pipes, ducts, and conduits. Joists tested by the Steel Joist Institute are standardized in depth up to 48 in. for spans up to 96 ft for roofs. The span of joists should not exceed 24 times the depth.



4) Steel Purlins and Concrete Slab

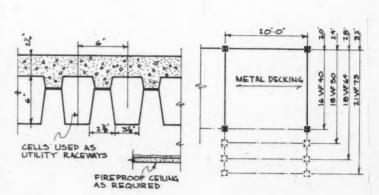
This system is one of the oldest fire-resistant floor systems. Beams should be spaced at approximately 8 ft to permit the use of welded wire fabric. Light weight concrete is used to reduce the dead load of the slab. For its principal application, office buildings, fill is required for the installation of utilities. A modification of this system consists of using lighter sections, such as Junior beams, at closer spacing so that standard ply-wood forms may be clipped to flanges and easily removed after the slab has hardened.





5) Cellular Metal Decking

The principal advantage of this floor system is the flexibility provided by the cells for the installation of utilities and for the location of electrical and telephone outlets. Other important advantages are light weight and fast erection. It is widely used to advantage in office buildings. Available in various depths for both short spans and long spans. Light weight concrete is not structural but serves as fill and finish and for fire protection of the top. In addition to the unit shown here, there are other similar products commercially available. For non-fireproof roofs, decking may be left exposed and the concrete fill omitted. To Be Continued



We'd be happy to do your laundry.

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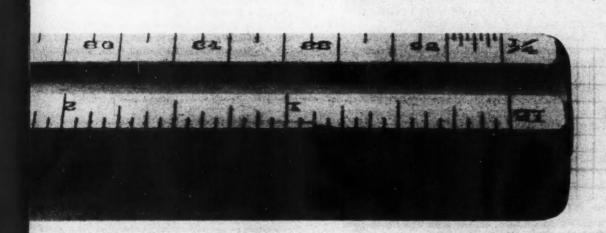
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SYLVANIA LIGHTING WITH MULTI-LAYER POPIZED IMPROVE VISUAL

THE RESEARCH

In 1958 H. Richard Blackwell, Ph.D.,* reported the results of an 8-year study** to determine the amount of illumination required for the human eye to perform various seeing tasks. These findings served as a basis for The Illuminating Engineering Society's official Recommended Footcandle Levels for all types of Visual Tasks.

In the original report, Dr. Blackwell indicated that his work had been performed under ideal glare-free conditions.

A second report by Dr. Blackwell*** specifically on the subject of reflected glare was presented to the National Technical Conference of the Illuminating Engineering Society on September 26, 1961. Covering two years of research, this report emphasizes the importance of increasing task contrast by reducing relected glare and the effect of this action on visual efficiency. It also includes a recommended new method of evaluating quantitatively the effectiveness of lighting for visual tasks, taking into consideration the reflected glare on the task as well as the quantity of illumination required.

Dr. Blackwell's research also shows that, through the use of efficient multi-layer polarizing light panels, reflected glare can be reduced considerably. As a result of increasing task contrast by reducing this reflected glare through polarized light, the visual efficiency of light is greatly increased . . . in fact, an improvement of 100% over unpolarized light can be expected in most practical room applications when the same lighting equipment layout is used.

*Professor and Director, Institute for Research in Vision, The Ohio State University, Columbus, Ohio.

**"Development and Use of Quantitative Method for Specification of Interior Illumination Levels on the Basis of Performance Data," published in the June, 1959 issue of Illuminating Engineering, pages 317-353.

***"A General Quantitative Method for Evaluating the Visual Significance of Reflected Glare, Utilizing Visual Performance Data."

(*) Trade Mark of PolRized Panel Corporation.

THE PRODUCT

No one invented polarization and no one owns it! Polarization has been known for hundreds of years but it was only forty years ago that a practical, commercial use was discovered. This of course refers to the absorption-type, linear polarizing materials commonly used today for sunglasses, camera filters, 3-Dimensional projections, etc. However, these polarizing materials are not efficient transmitters of light since they absorb a high percentage of visible light.

In more recent years, the concept of polarizing light at the source by means of multi-layer polarizers was developed. These PolRized panels as now used in Sylvania lighting equipment increase task contrast by the reduction of reflected glare thus improving visibility and visual acuity compared to tasks viewed by unpolarized illumination.

Multi-layer constructed PolRized panels plane-polarize the light with a high transmission and produce a radial light distribution or cone polarization.

Sylvania fixtures using PolRized Panels transmit multiple reflections and refractions of light. This process is known as Reflux Polarization. The additive effect of the transmitted light provides a practical and efficient shielding medium for direct-distribution type luminaires.



The sketch illustrates how each pinpoint of light is polarized in every direction around the fixture. This Radial Distribution or Cone Polarization is emitted from each point on the surface of the PolRized Panel.

The radial distribution from Sylvania fixtures with PolRized lighting panels is of real significance in modern lighting practice since we recognize that visual tasks are performed in practically all directions and at varying angles to the light source. With the flexibility of modular construction, proper overall lighting is more desirable and practical than ever.

Over two years of objective scientific research at Ohio State University's Institute for Research in Vision proves that Reflected Glare is much more important for visual effectiveness than previously believed . . . that Multi-Layer PolRized(*) lighting panels increase task contrast by reducing Reflected Glare substantially to make illumination better to see and work by.

FIXTURES ANELS, REDUCE REFLECTED GLARE... EFFECTIVENESS 100%!

WHAT THIS MEANS TO YOU . . . AND TO THE LIGHTING OF THE FUTURE

Blackwell's findings and the development of PolRized Panels represent together a significant breakthrough in the field of lighting. No longer will high footcandle levels be the only <u>measured</u> criterion of good lighting. Reflected glare and its effect on task contrast and visual acuity must be considered when evaluating and designing lighting requirements.

This research proves that polarization of the light source always improves vision. It makes seeing easier by eliminating "veiling glare." Obviously this improvement in seeing conditions means more comfortable and practical lighting and should result in higher working efficiency and accuracy. Visual mistakes and eye fatigue should both be reduced considerably.

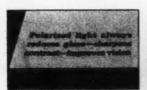
The studies show further that polarization enhances colors as well as improving vision . . . and that the benefits of polarization are realized more fully when used in a medium to large area and where the directions and angles of the seeing tasks vary. Thus, PolRized illumination is especially beneficial to general offices, schools, stores, banks and other commercial applications.

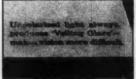
With the development of PolRized Lighting Panels, higher footcandle levels for precision tasks can now be obtained with direct lighting without the corresponding increase in reflected glare.

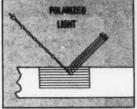
Because of the significance of this research, Sylvania will make available immediately PolRized Panels for its direct distribution

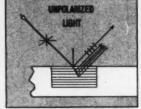
fixtures and its overall luminous "Sylva-Cell" ceiling system.

Make certain you get full information on these products for all of your future lighting projects.









Sketches show how polarized light enhances colors by eliminating surface reflectance of the light source. This reflectance dilutes true color of substance.

Use this coupen to obtain more complete data on Sylvania fixtures with Politized lighting panels.

LIGHTING FIXTURES BY

SYLVANIA

GENERAL TELEPHONE & ELECTRONICS

ADDI

		Products Wheeling,	W. Va.				
		rmation on Representati					
NAME		TITLE					
NAME	-		_		· · · ·		
COMPANY							

UNDER THIS LOW, LOW SILHOUETTE ...

TWIN DOME



Two acrylic domes and aluminum nailing flange are bonded together by rigidly tested sealant. Hardboard insulation behind gravel stop eliminates condensation.



Twin Dome is installed in 15 minutes. Continuous 3" flange is nailed to roof deck, covered with 4 alternating layers of mastic and roofing felt, plus hot tar, gravel.

NEW, IMPROVED! FIRST TOTALLY PROVEN DOME-WITHIN-DOME DAYLIGHTING DESIGN

The new Wasco Twin Dome® is the first daylighting product of its kind with both inner and outer domes of shatterproof, weatherable Acrylite®. A field-proven polysulfide-base sealant ensures permanent compatible bonding of the two domes and an aluminum nailing flange. The uniform, hermetically sealed 1-inch dead-air space between the domes acts as a highly efficient thermal barrier and eliminates condensation. With its self-flashing design, the unit hugs the roof - permitting fast, economical, curb-free installation.

Choice of clear, white translucent or reflective inner and outer domes allows the architect to regulate light levels and heat gain. Twin Domes® are also available in three curb-mounted models. Write for Wasco Twin Dome® brochure with complete test, installation and specification data.



WASCO PRODUCTS DEPT. CYANAMID 5 BAY STATE RD, CAMBRIDGE, MASS.

SOUND SYSTEMS

This article discusses the two principal types of sound reinforcing systems—central and distributed. It also goes into the various types of loudspeakers and their proper location. Some of the attendant problems such as location of microphone and speaker to avoid squeal due to feedback are also covered

by Robert B. Newman and William J. Cavanaugh Bolt Beranek and Newman Inc. Consultants in Accoustics

In many situations, to obtain adequate loudness and good distribution of sound it is necessary to augment the natural transmission of sound from source to listener by means of a sound reinforcing system. In large sports arenas, in airport terminal buildings, in large auditoriums and in other noisy locations, it is almost always necessary to provide sound reinforcement. Even in rooms where most strong-voiced speakers can be heard clearly, the weaker voices must be amplified, and there is often the requirement for amplifying recorded material or movie sound. In all cases, however, the design of the sound reinforcing system must be carefully integrated with the design of the room and with its acoustical characteristics.

Sound reinforcing systems consist of three essential components: microphone (means "very sound"), amplifier, and loudspeaker. The microphone is placed somewhere near the source of sound: it picks up the sound energy radiated by the source and converts it into electrical energy which is then fed to an amplifier. The amplifier increases the magnitude of the electrical signal and supplies it to the loudspeaker which converts the electrical energy to air-borne sound energy again for distribution to the listeners at the proper level. (See Fig. 1).

There are two principal types of sound amplification systems: central and distributed. The preferred type in most situations is the central system in which a loudspeaker (or cluster of loudspeakers) is located directly above the actual source of sound. Only one loudspeaker position is used in a system of this sort, and it is capable of giving maximum realism. (We will not be concerned here with "stereo" sound playback systems.) The listener with his two ears is able very readily to localize

the direction of the source of sound and, if the amplified signal comes from the same direction as the original sound, he gets an impression merely of increased loudness or clarity but not of artificial "amplified" sound. (Fig. 2.)

The other principal type of sound reinforcing system is the distributed type. In this system one uses a large number of loudspeakers located overhead (not along the sides of the room facing across), and usually a low level amplified signal is supplied to a small area. This type of system operates much like downlighting. We cover the room with small "pools" of sound, each listener receiving sound from only one loudspeaker. This type of system is used in any situation where the ceiling height is inadequate to use a central system or where all listeners cannot

have line-of-sight on a central loudspeaker. It is also used in such spaces as large convention halls, hotel ballrooms, or large conference rooms where there must be a very flexible arrangement of the space for amplifying sources of sound in any position in the hall. It is the logical system for most airport terminal buildings where the amplified signal usually must be somewhat higher in level in order to override the high background noise levels due to aircraft operations. The distributed system is a flexible system, and, while it does not give maximum realism, in reinforcing live activities, it can be made to provide high intelligibility in many difficult situations. (Fig. 3.)

In good practice today one rarely locates loudspeakers at the two sides of the proscenium opening, nor does

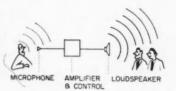


Fig. 1. Basic elements of a sound reinforcing system

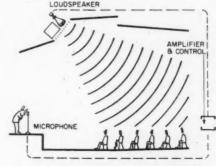


Fig. 2. Central loudspeaker system

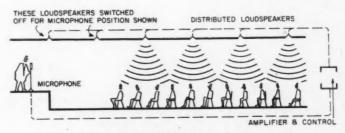
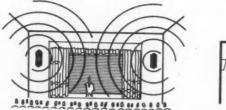


Fig. 3. Distributed loudspeaker system



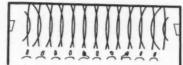


Fig. 4. Poor loudspeaker placement can mean ineffective sound reinforcement

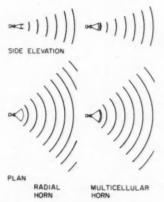


Fig. 5. Horn-type highly directional loudspeakers and their coverage patterns

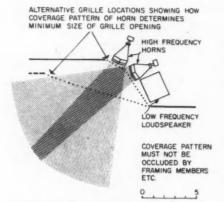
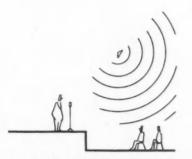


Fig. 6. Loudspeaker grille sizes are determined by the coverage patterns of the loudspeakers behind them



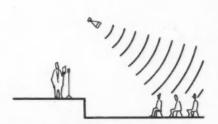


Fig. 7. "Feedback" to the microphone can result unless the loudspeaker location and directional characteristics are carefully considered

one have a crossfire from loudspeakers distributed along the two sides of the room, nor as in one recent instance, from the four corners of a large reverberant space. These "semi-distributed," semi-high level systems never work well, and the hearing conditions in a space can usually be improved by actually shutting them off! (Fig. 4.)

Central Systems

The loudspeaker for a central system usually consists of a cluster of directional horns, some of which handle the high frequency end of the audible spectrum, and larger loudspeakers

handling the low frequency end of the spectrum. The high frequency horns are usually exponential, multicell or radial horns and are arranged in clusters to give coverage of specific areas of the seating. It is important that the horns have excellent directional characteristics, and that the level of operation of the several units be individually adjustable. Bends or folds in horns usually destroy their evenness of coverage and directional control; both the radial and exponential horns usually employ direct expansion of the wave front. One cannot achieve high quality sound amplification without loudspeakers with carefully controlled directional characteristics (see Fig. 5.) If a loudspeaker system is to be used only for speech purposes, the system need not have any low frequency loudspeakers and can be housed in a smaller space than a full frequency range system used for music as well. Usually, a speech system is cut off at approximately 300 cycles per second (i.e., these loudspeakers do not amplify sounds below that frequency). This results in no loss in realism and actually improves intelligibility in rooms with "boomy" characteristics.

The designer of an auditorium incorporating a loudspeaker system must realize that the loudspeaker system will take a great deal of space and that it cannot be tucked conveniently into a one-foot slot. The grille in front of the loudspeaker must be completely transparent to sound and must contain no large scale elements (see Fig. 6.) Every listener in the room must have line of sight on the loudspeaker; we do not count on reflection of sound from room surfaces to fill in any areas not covered by direct line of sight.

The operator of the sound system should be located toward the rear of the seating area where he can hear the system as it is heard by the audience. He should not be behind a glass window in a booth, receiving sound only on a monitor loudspeaker. The power amplifiers can be in any convenient location but the actual controls must be "in the room."

Microphones must be placed near the sources of sound and, if there are to be many sources, as in the amplification of a play, there must be many microphones suspended overhead or concealed in the scenery so that the actors are always relatively close to these pickup devices.

There is the important problem of feedback of sound energy from loudspeaker to microphone, and the relative locations of microphones to the loudspeakers must be carefully considered to avoid the familiar squealing or howling of a poorly designed and operated system. This is a matter for detailed consideration by the designer of the system, and is not primarily an architectural question except in so far as relative location of loudspeaker to microphone is concerned. (Fig. 7.)

(To be concluded in January)

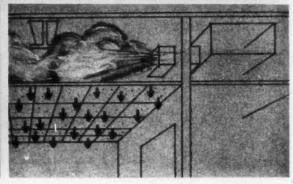
ACOUSTIC CEILING DOUBLES AS CONDITIONED-AIR OUTLET

A showroom of Armstrong flooring and acoustical ceiling products opened recently at 60 W. 49th St., New York City. One feature is the Armstrong Ventilating Ceiling which distributes conditioned air throughout the room. This product combines the functions of sound-conditioning, decoration, and room-air distribution in a single material.

It is designed not only to improve air conditioning effectiveness, but to save construction costs by eliminating conventional air diffusers and simplifying duct work. Blended into the ceiling's surface design are thousands of tiny perforations which allow conditioned air to filter directly into the room through the entire ceiling surface. This diffusion method helps eliminate drafts and airconditioning noise. Moreover, the ceiling is said to be self-cleaning, the continuous down-pressure of air providing a barrier against accumulation of dirt. Armstrong Cork Co., 4200 Miller St., Lancaster, Pa.







DIAL COLORS FOR PRECISION MATCHING

An automated color communications device called Telecolor offers virtually limitless color demonstrations on a screen $11\frac{1}{2}$ in. in diameter. The machine looks much like a television set. By turning a series of dials (each controlling the proportion of a basic color), rapidly rotating color discs meld into specific shades or hues. The device provides accurate color matching in a size large enough to eliminate optical confusion.

Capabilities of the machine were demonstrated at a press preview by random color selections transmitted by phone in code numbers between New York and Chicago and dialed on Telecolor sets with integrity. Colors dialable on the set can be made into actual paint colors by mixing machines. Primary users are expected to be paint dealers, architects, professional painters, interior decorators and educational institutions.

Sets will be available on a leasepurchase arrangement. Valspar Corp., 200 Sayre St., Rockford, Ill.

more products on page 168



"Black Light"

"Black Light," the near-ultraviolet radiant energy which causes certain materials to fluoresce, can be of special value to lighting designers and engineers. Booklet LS-141 gives information on black light sources, representative black light applications and basic black light design procedures. Inquiry Bureau, Dept. B1-61, General Electric Co., Nela Park, Cleveland 12, Ohio.

Wood Panels

Ways to use *Masonite* wood panels in motel interiors and exteriors are graphically presented in a 16-page booklet. *Masonite Corp.*, 111 W. Washington St., Chicago 2, Ill.*

Pass Windows

(A.I.A. 16-1) An illustrated folder gives details about vertical sliding pass windows, either stainless or plain painted steel, designed for use in food service areas between kitchen and dining room. The Richmond Fireproof Door Co., P. O. Box 911, Richmond, Ind.*

Air-Conditioning and Heating

Six new technical catalogs are available from Dunham-Bush, Inc. Manual #789 has 58 pages of application of Brunner multi-drive compressors. Specifications and rating tables on air conditioning and refrigeration compressors are included in Bulletin #790. A compact line of air handling units are explained in Bulletin #6011C. Bulletin #6001A presents an engineering guide for direct expansion coils. A line of steam heating specialties is presented in a new catalog, Form 1501D. Form 1551B is a revised edition of the hot water heating equipment catalog. Dunham-Bush, Inc., West Hartford, Conn.*

Butyl Rubber

A description of the various forms of butyl rubber and its uses for roofing, weatherseals, floor cushioning, sound and shock absorbing pads, gaskets, etc. is available in an eightpage booklet. Enjay Chemical Co., 15 W. 51st St., New York 19, N.Y.

Interior Movable Walls

Designs possible with a new series of movable partitions are pictured, along with detailed information about the partitions. Mills Co., 965 Wayside Rd., Cleveland 10, Ohio.*

Fibercast pipe

Description, details and specifications are given for Fibercast pipe, a glass fiber reinforced plastic pipe developed to handle special pressure and corrosion problems. Fibercast Co., Box 727, Sand Springs, Okla.

Marine Retail Establishments

The Outboard Boating Club of America has directed the compilation of three manuals on marine retail establishments. Of special interest to architects is a 34-page manual, "Setting the Stage for Sales" by Milton Woll of Booz, Allen and Hamilton. This manual covers space requirements for boat displays, servicing, plot selection, lighting, etc. Other manuals cover boating salesmanship and management of marine retail establishments including record forms, advertising, etc. Outboard Boating Club of America, 307 N. Michigan Ave., Chicago 1. Ill.

Visual Aid Facilities

Audio-Visual Guide to Better Projection gives architectural arrangements for the most effective showings of films, slides and filmstrips. Radiant Mfg. Corp., AVG, 8220 N. Austin Ave., Morton Grove, Ill.

Plywood Sidings

An assortment of plywood sidings to fit any architectural style is described in a 15-page brochure which gives technical data as well as design ideas. U.S. Plywood, Dept. PR, 55 W. 44th St., New York 63, N.Y.*

Porcelain Enameled Curtain Walls

(A.I.A. 17-A) Color photographs illustrate an eight-page booklet describing Calcore panels which have faces of porcelain enameled steel, insulated cores and metal backup sheets or pans. Insulating materials include fiber glass; cement asbestos board; plywood; or honeycombs of paper, aluminum or asbestos. Caloric Corp., Architectural Porcelain Div., Topton, Pa.*

Erosion-proof Cements

Details about six erosion-proof cements are given in a 12-page bulletin. Atlas Mineral Products Co., Mertztown, Penn.

*Additional product information in Sweet's Architectural File

more literature on page 186



Hospital Hardware

(A.I.A. No. 27-B) An eight-page bulletin describes and illustrates Corbin hardware specifically designed for hospital applications. Line includes door controls, locks, hinges, etc. P. & F. Corbin Div., American Hardware Corp., New Britain, Conn.*

Another Amerada product serving the architect - and his clients' best interests!

How a new self-shading glass adds a dramatic new concept in design while answering an age-old need for reducing maintenance costs!

new Comfor-Lite by amerada

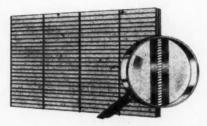
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the cost of standard window cleaning. Moreover, rugs and upholstery are completely protected from fading due to sun-scorch.

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Personal comfort. Comfor-Lite's filtering of the sun's direct rays pays highly desirable dividends in improved lighting, less eyestrain and relaxing glare-free atmosphere for occu-pants. Clear, unobstructed outward visibility is assured since the thousands of minute louvers inside Comfor-Lite are virtually unnoticeable and remain permanently stationary. Client appeal. In specifying extraordinary new Comfor-Lite as your visual element, you provide your client with a saleable feature to materially influence rental decisions, help speed removal of "Space Available" signs. And by economizing in the area of shading expense, you often free funds for more thorough design treatment elsewhere in the project. In those projects where budgetary considerations pro-hibit overall use of unconventional glass, Amerada suggests specification of Comfor-Lite on the sunside only, where its peak effectiveness and economy are realized.

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National Tube Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors United States Steel Export Company, New York

United States Steel Corporation National Tube Division 525 William Penn Place Pittsburgh 30, Pennsylvania

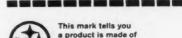
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Product Reports

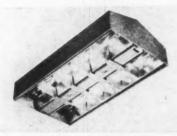
continued from page 163

Two-Faced Gypsum Panels

Wall panels with strong honeycomb cores faced on both sides with gypsum wallboard reduce installation time and cost because the panels can form complete wall sections without conventional stud framing. To erect these Hof-Kor panels, corresponding plates are nailed to the floor and ceiling rafters. Panels are placed in position and attached to plates. Hollow metal splines at joints hold panels in alignment and provide raceways for electrical conduits. Hoffman Industries, Inc., Batavia, Ill.

Outdoor Infrared Fixtures

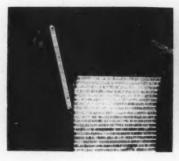
Two infrared fixtures are available equipped with T3 tubular quartz lamps for both heat and light or quartz tubes for heat without light. Designed for unsheltered outdoor applications, they have waterproof housings of 14-gage aluminum with a gray baked enamel finish. One of the models is a hanging fixture and may be chain mounted on either a



vertical or horizontal stem. The second model is mounted on horizontal surfaces and can be used for indoor flush ceilings. Luminator, Inc., 120 N. Peoria St., Chicago 80, Ill.

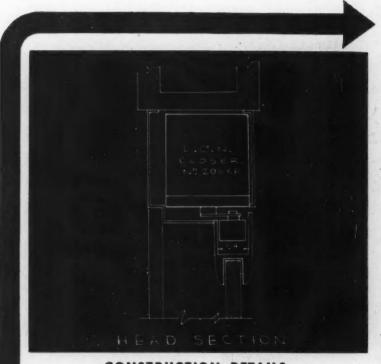
Electro-Hydronic Heating System

A heating system which uses electricity at night depends on the services of a heating contractor rather than an electrical contractor. Called Off-Peak system, immersion coils in the boiler heat water at night from 150 to 240 F and stores the water in storage tanks adjacent to the boiler. There are zone valves for fuel economy. The complete package includes boiler, circulator, zone valves, storage tanks and baseboard radiation. Operating costs are said to be reasonable. Edwards Engineering Corp., Pompton Plains, N.J.





more products on page 172



CONSTRUCTION DETAILS For LCN Overhead Concealed Door Closer Shown on Opposite Page

The LCN Series 200-CP Closer's Main Points:

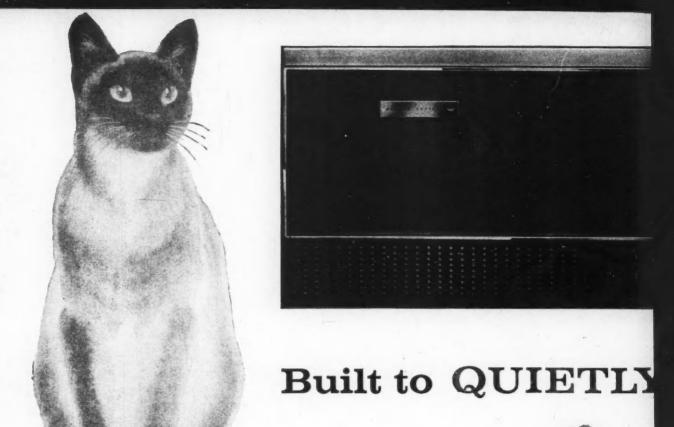
- 1. Efficient, full rack-and-pinion, two-speed control
- Mechanism entirely concealed; arm disappears into door stop on closing
- Hydraulic back-check prevents door's being thrown open violently to damage walls, furniture, door, hinges, etc. Door may open 130°, jamb permitting
- Hold-open (optional) set at any one of following points: 85°, 90°, 100° or 110°
- 5. Easy to regulate without removing any part
- Used with either wood or metal doors and frames
 Complete Catalog on Request—No Obligation
 or See Sweet's 1961, Sec. 18e/Lc

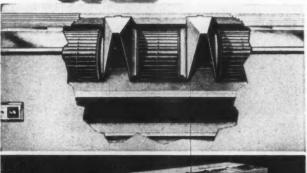
LCN CLOSERS, PRINCETON, ILLINOIS

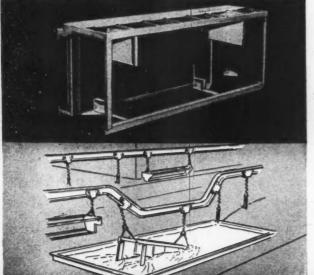
A DIVISION OF SCHLAGE LOCK COMPANY

Canada: LCH Clasers of Canada, Ltd., P. O. Box 100, Port Credit, Ontario

Modern Door Control by LCN. Closers Concealed in Head Frame





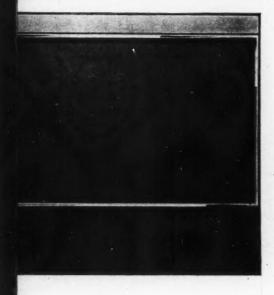


QUIETER...50% QUIETER THAN OTHER UNIT VENTILATORS

A unique new fan housing design hushes sound level. Herman Nelson unit ventilators are 50% quieter than other makes. Extruded top discharge grille design and "modular" fan construction are combined with a new first in fan housing design to keep the sound level extremely low.

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New single-unit, all-welded frame construction is an important feature of every Herman Nelson Unit Ventilator. Structural maintenance is eliminated. The entire frame, after fabrication, is dipped into a permanent corrosion- and rust-resistant solution. Outdoor and room air damper frames are also dipped for maximum protection against rusting.



ADVANCED ARCHITECTURAL STYLING

New Herman Nelson Unit Ventilator styling was inspired by the distinctive patterns of modern school architecture. This new styling was acclaimed by Product Engineering magazine as an "outstanding achievement in product engineering and design". Decorator panels are available in six beautiful colors. Basic unit color is charcoal with aluminum trim. Gracefully "lanced" intake grilles and extruded aluminum top discharge grilles help the unit efficiently "breathe" fresh-air atmosphere into the school classrooms.

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EVERY Herman Nelson Unit Ventilator is expertly designed from the inside out to provide accurate room-by-room thermal control for the life of your new school building.

Here are four of the many special Herman Nelson features which assure long, reliable unit ventilator service:

- 1 Single-unit welded frame construction
- 2 Corrosion-resistant "bath" for unit and damper frames
- 3 Special low-sound-level fan housing design
- 4 One-piece filter system

Consistent product improvements have led architects and school officials to expect the best first from Herman Nelson for over 50 years. Herman Nelson developed the first commercially successful unit ventilator, the first hot water heating element for unit ventilators, the first downdraft control system, and most recently, the first air conditioning unit ventilator.

Write for a free copy of the new full-color Herman Nelson Equipment Guide for Schools. Herman Nelson School Air Systems Division, American Air Filter Company, Inc., 259 Central Avenue, Louisville, Kentucky.

Herman Nelson

SCHOOL AIR SYSTEMS DIVISION

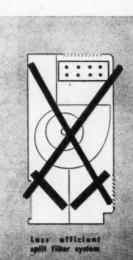


American Air Filter Company, Inc., Louisville, Kentucky



EFFICIENT ONE-PIECE FILTER SYSTEM

Herman Nelson's one-piece filter system permits the mixture of out-door and room air to pass through the entire filter area at all times. This is important. Split filter systems "hide" the second filter which is often overlooked when time comes to change the filters. This damages filter efficiency by reducing full outdoor air delivery and restricting cooling capacity. Filters on Herman Nelson Unit Ventilators are easily accessible through lower front panel (see photo).





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Circigrid Luminous Ceiling



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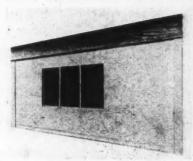
Division—The Wilson Research Corp.

Product Reports

continued from page 168

Vertical Acoustical Curtains

Vinyl and lead acoustical curtains, complete with chalk panels, are electrically operated and housed in a



ceiling enclosure of 18 in. LeadX, ½ in. thick, gives a frequency transmission loss average of 32 db. Torjessen, Inc., 209-25th St., Brooklyn 32, N.Y.

Roof Coating

Neoprene, hypalon and chopped glass fibers combine to make a roof covering that can be sprayed on roofs of unusual geometric form. Any color is available by using hypalon as the final color coat. Ply-O-Glas Co. of America, 50 Cutter Mill Road, Great Neck, N.Y.

Window Coverings of Plastic

Three-inch thermoplastic squares make up a window covering which reduces sun-induced heat by reflecting a high percentage of infra-red rays. The interlocked squares, vented for



light and air, come in 22 colors. The covering is suspended on nylon rollers from drapery tracks when stacked, it takes up only 1/12th of the extended width. Jaylis can also be used as a room divider, door, and wall screen. Jaylis Industries, Inc., Los Angeles, Calif.

more products on page 176



Better walls start with better mortar. To be sure of top quality, specify mortar made with masonry cement. This cement is a blend of materials that gives a good balance of the desirable properties in mortar. Except for sand and water, everything is delivered in one bag. Mixing calls for no special skills . . . when workability is right, water content is right. It makes a "fat" mortar that promotes better workmanship. Tighter joints, uniform color and dependable strength are assured. For the best in wall performance with any masonry unit—concrete, brick, tile, stone or glass—architects everywhere specify masonry cement. Write for free literature. (U.S. and Canada only.)

PORTLAND CEMENT ASSOCIATION Dept. Al2-8, 33 W. Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete

Improve visibility three ways with J-M Colorlith® chalkboards

Now you can provide classrooms with strong, durable, beautiful chalkboards that are truly easy on the eyes. With Johns-Manville Colorlith, you get uniform texture, minute pore structure and pleasing shades to eliminate the three major causes of poor chalkboard visibility: chalk build-up, low visual contrast and harsh colors.

Colorlith is a dense, homogeneous sheet that provides a smooth, hard-writing surface that is extremely easy to clean. Because its minute pores cannot fill with chalk particles, dust build-up is cut to a minimum. This means infrequent washings, too! Colorlith's asbestoscement structure takes chalk easily, thus permitting full, unbroken lines for easy readability. And, Colorlith is available in three eye-pleasing colors-Spruce Green, Cameo Brown and Charcoal Gray. Extensive re-search and testing have proved these colors the most restful to the eyes.

Because of its unique composition, Colorlith retains its excellent properties over the years. For full details on this high-quality chalkboard, write to J. B. Jobe, V.P., Johns-Manville, Box 14, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

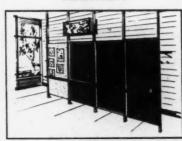
ADDITIONAL CLASSROOM USES FOR COLORLITH CHALKBOARD



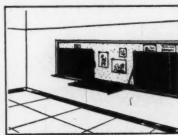
PARTITIONS



DOORS



WARDROBES





JOHNS-MANVII

Where power blackouts must not happen



Save the children... specify stairways, ex

KOHLER ELECTRIC PLANTS

Sudden darkness can cause panic and disaster.

When normal power fails, Kohler electric plants provide immediate electricity—lighting for swimming pools, auditoriums, gymnasiums, corridors, stairways, exits, power for automatic heat.

Increasing dependence on electrical equipment makes emergency power vitally important in schools, hospitals, other public and commercial buildings as well as the home. And Kohler electric plants are known everywhere for reliability.

To help you write specifications for varied applications, Kohler Co. will send on request a manual with data on sizes from 1000 watts to 115 KW, gasoline and diesel. Write Dept. K-12.



KOHLER OF KOHLER

meled Iron and Vitreous China Plumbing Fixtures - All brass Firtings -Electric Plants - Air-cooled Engines - Precision Controls

Product Reports

continued from page 172

Assembly Line Lighting

Enclosed fixtures, gasketed to keep out dirt and easy to clean, provide



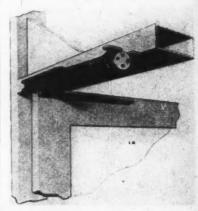
high illumination for assembly lines and other industrial uses. Paramount Industries, Inc., G-1080 Ballenger Road, Flint, Mich.

New Types of Terrazzo Floors

Two types of terrazzo flooring use this ancient material to fit modern needs. "Conductive terrazzo" is designed for safety in hospitals, especially where anesthetics are used. The other type is for indoor-outdoor installations over radiant heating or cooling systems. National Terrazzo and Mosaic Assoc., Inc., 2000 K St., N.W., Washington, D.C.

Concealed Door Closer

A slim aluminum overhead door closer is hidden from view and can



be installed in any headjamb or transom bar. Designated Model 2000, the unit is available in 90 or 105 degree preset hold-open positions as well as "no-hold-open." It can be used on single or double acting doors up to 48 in. Beach Mfg. Co., 2000 S. Santa Fe Ave., Compton, Calif.

more products on page 180

N WASHINGTON

A BUILDING TO REMEMBER



What makes a building a building to remember? The right use of the right material.

Whether an entire building, or a trim—granite has its inherent quality, the quality of

"rightness"; the quality of permanence; the signature of impeccable taste.

REMINGTON RAND BUILDING WASHINGTON, D.C.

Architects: Mills, Petticord & Mills General Contractor: Joseph F. Nebel Co. Granite: Regal for Spandrels & Surrounds

GEORGIA GRANITE FOR BUILDINGS TO REMEMBER







Loyalsock Township Junior High School Williamsport, Pennsylvania Architect: John Boodon

Ribbons of windows develop exterior character for this new school

Architect John Boodon specified Andersen Flexivents® for adequate glass area, ease of ventilation, effective insulation

Extensive bands of Andersen Flexivents help Loyalsock Township Junior High School in Williamsport, Pennsylvania function as an efficient, versatile educational plant.

These Flexivents are stacked three high to provide all the natural illumination desired. They open to almost 90°—quickly and easily—to bring in desired ventilation, even in a rain storm.

On cold days Andersen Flexivents save on heating bills. They have the natural insulating qualities of wood—plus weathertightness that is 5 times industry standards. With the amount of glass area in a school this size, fuel savings can be substantial—more than enough to take care of maintenance.

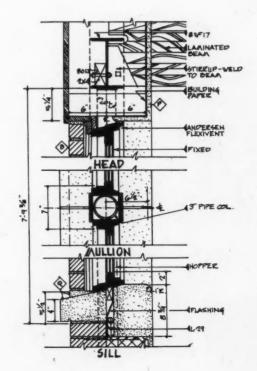
Andersen Windows are available in seven different basic types: Casement, Glider, Pressure Seal, Beauty-Line, Strutwall*, Basement and Flexivent. And each of these types comes in sizes to suit any building need.

Check Sweet's File, and contact your distributor for Tracing Detail File. Andersen Windows are available from lumber and millwork dealers throughout the United States and Canada.

TRADEMARK OF ANDERSEN CORPORATION

Andersen Windows
Andersen Corporation - Bayport, Minn.

America's most wanted windows





Product Reports

continued from page 176

Epoxy Mortar

A thinline epoxy mortar has great strength and ability to bond any masonry substance. Twelve lb of *Multi Mortar* is supposed to do the work of 800 lb of ordinary mortar. The rapid-setting mortar is weatherproof and waterproof. *Delorme*, *P. O. Box 3184*, *Granada Hills*, *Calif*.

Eye-Level Refrigerators

Built-in refrigerators at eye level are part of compact kitchens designed with retirement homes in mind. Sizes



available are 8.1, 10.2 and 12.3 cu ft. The wood-construction kitchens range in width from 79 in. up to fit almost every space. Major Line Products Co., Inc., Hoquiam, Wash.

Plastic Shower Stall

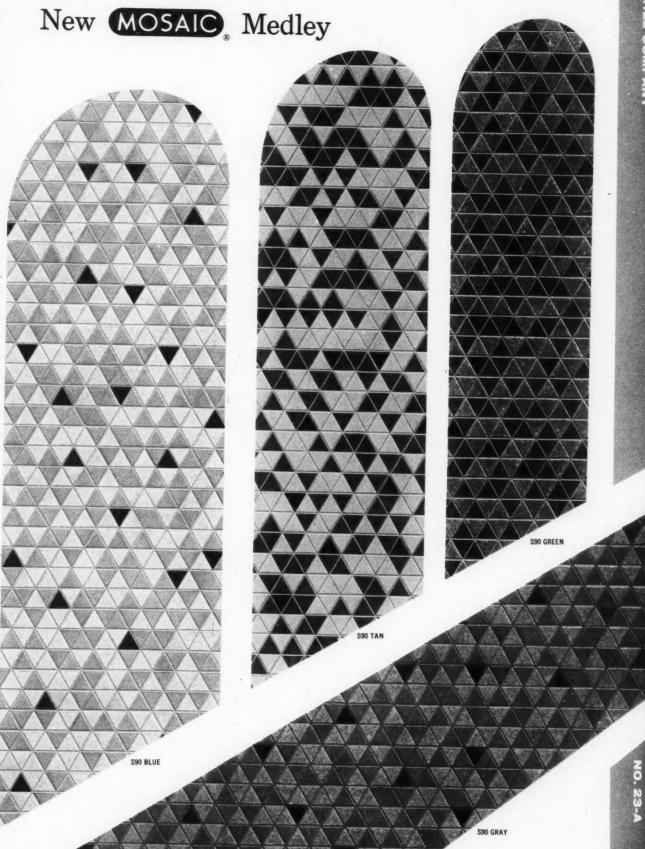
Polyester resin reinforced with fiberglass, the same plastic used for impact-resistant boats, is used in a one-piece, prebuilt shower stall. Easily installed, the stall has walls of American Cyanamid's *Laminac* with a hard, lustrous finish which resists mildew and fungus growth. Ceralyte Corp., Salt Lake City, Utah

Spiral Fluorescent Lamps

Spiral design enables *Power-Twist* bulbs to produce brighter light than conventional styles. The visual effect



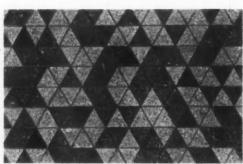
is similar to glare-reducing louvers, thus reducing fixture cost and maintenance. Duro-Test Co., North Bergen, N. J.



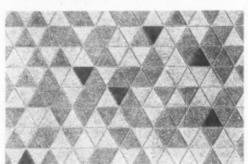
New Mosaic Medley

in 2" equilateral triangles
of ceramic mosaic
gives special vitality to either floors or walls.

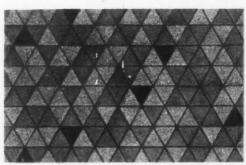
Particularly attractive in combination with other simpler patterns.



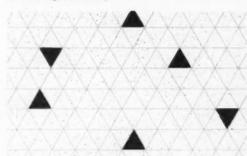
S90 BLUE-GREEN Triangle Mosaic Medley



S90 PEACH Triangle Mosaic Medley



S90 PINK Triangle Mosaic Medle



S90 BLACK-WHITE Triangle Mosaic Medley



S90 YELLOW Triangle Mosaic Medley

1" x 1" Medley 3015-VCEA



See the "Mosaic Workbook for Architects" in Sweets, call in your Mosaic Representative or write The Mosaic Tile Company, P.O. Box 112, Zanesville, Ohio.

MOSAIC

THE MOSAIC TILE COMPANY

Member: Tile Council of America, Inc. and The Producers' Council, Inc.

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1" x 1" Medley 3015-VBC/

1" x 1" Medley 3015-VFDA



GRAPHIC SELECTION METHOD FEATURED IN NEW BULLETIN!

Contains an amazingly simple graphic selection method for fast, easy sizing. Gives the complete story on Centralaire units. Write for Bulletin No. 404 today!



Versatility that's practically unlimited! Sectionalized design permits one unit to meet both the space and air handling requirements of any commercial building needing 400 to 30,000 CFM output. Noise has been reduced to a lullaby level.

Utilizing steam or hot water, chilled water or refrigerant, this central station air handling unit performs all the functions of good air conditioning—heating, ventilating, cooling, dehumidifying, humidifying, and filtering, depending on specifications.

Cabinets are handsomely finished in mar-resistant metallic bronze... flush-mounted enclosure panels provide a trim, clean appearance.

See your Airtherm Representative for more information!



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For steam, hot water, chilled water systems

CABINET UNIT HEATERS - CABINET AIR CONDITIONING UNITS - VERTICAL & HORIZONTAL UNIT HEATERS - CONVECTORS



Free Standing Model W11D Available in 8, 11, 15, 20 gallon capacities.

NEW WESTINGHOUSE

Flush-to-wall units end unsightly plumbing, are easier, less expensive to install, take up to 30% less space.

Westinghouse presents the complete line of water coolers designed specifically for today's modern-living buildings. New WALL LINE coolers eliminate old-fashioned, unsightly plumbing that collects dirt, dust, and trash. They are clean looking and completely functional . . . all plumbing is neatly concealed inside. Takes up to 30% less space . . . opens up corridors and passageways. New slip connections make installation and maintenance faster and easier. There are

Westinghouse WALL LINE models for installation on-the-floor and off-the-floor . . . and "Bilt-In" models that fit right into the wall. You can be sure . . . if it's Westinghouse.

See the 1961 Sweet's Catalog Service for complete specifications on Westinghouse Water Coolers described in Architectural File and Industrial Construction File . . . 21 model selection . . . or call the Westinghouse Water Cooler Distributor listed under "Water Coolers" in the Yellow Pages. Better yet, mail this coupon right now for your personal copy of the 1961 Westinghouse A.I.A. Catalog.



Wall-Hung Model W£11D Available in 8 and 11 gallon capacities.



Free Standing "Junior" Model WL7D Available in 8 and 11 gallon capacities.



"Bilt-In" Model WN10 Available in 5 and 10 gallon capacities.

WALL LINE" WATER COOLERS

w originator of

COUPON NOW! WESTINGHOUSE WATER COOLERS

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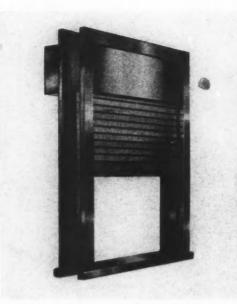
Westinghouse city

WESTINGHOUSE ELECTRIC CORPORATION Water Cooler Dept., 300 Phillippi Road Columbus 16, Ohio

Please send me 1961 Westinghouse A.I.A. Water Cooler Catalog.

NAME OF COMPANY

AR.12



New Cookson Integral Counter Door-and-Frame Units Come in Standard Sizes, Priced 25% Less, Cost Less to Install

Full Protection Plus the Compatible Architectural Look

Long the world's largest manufacturer of custom-built counter doors, Cookson now offers architects and owners a single, completely unitized frame-and-curtain for counter openings or pass windows. A standard line of four sizes is now available, to fit wall dimensions from 4" to 10" thickness, and rough openings of 4'0" x 4'0"; 6'0" x 4'0"; 8'0" x 4'0"; and 10'0" x 4'0".

Prices are at least 25% less than custom built counter doors and frames in other sizes. In addition, the Cookson frame

can be set in place at any time during construction, at the convenience of the contractor, resulting in lower installation costs. These units are furnished with a durable Cookson Type CD8-2 "Alumilited" Counter Door Curtain, placed in a stainless steel frame with sparkling No. 4 finish. Stainless steel curtain also available.

Here is the most practical, attractive and economical answer to standard size counter door applications, for schools, cafeterias, hospitals and ticket windows. See our catalog in Sweet's or

> write for your personal copy: The Cookson Company, 700 Pennsylvania Ave., San Francisco 7, Calif. Sales and service in principal cities.



COOKSON

ROLLING DOORS . FIRE DOORS . GRILLES . COUNTER DOORS . COILING PARTITIONS

Office Literature

continued from page 164

Marble Anchoring System

(A.I.A. 22-A) Light-weight, weathertight marble veneer can be anchored simply and rapidly with the Zibell system, described in a 12-page booklet which gives other specification for marble as well. The Georgia Marble Co., 11 Pryor St., Atlanta 3, Ga.

Buying Plywood

A free directory for purchasers and specifiers of hardwood plywood gives names and addresses of suppliers, the type of plywood each makes, types of glue bond, equipment and special items manufactured. "Where to Buy" also lists technical and promotional literature available. Hardwood Plywood Institute, 2310 S. Walter Reed Drive, Arlington 6, Va.

Industrial Fans

(A.I.A. 30-D1) Construction features, electrical characteristics and performance charts on Greenheck SB line of fans is given in an 8-page bulletin. Greenheck Fan & Ventilator Corp., Schofield, Wisc.

Sound Control

(A.I.A. 39-B) Geocoustic, a cellular glass acoustical unit which employs the patch technique in controlling sound, is discussed in a 12-page booklet, which includes actual job photographs and sketches. Background data on the material is included. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Penn.*

Industrial Doors for Every Use

Doors for special conditions are discussed in a collection of bulletins which give specifications for freezer, cold storage, shock absorber, humidity control, high temperature and fire doors. Clark Door Co., 515 Hunterdon St., Newark 8, N.J.

Roof-Top Air Conditioning

Roof-top units designed especially to heat and cool one-story buildings are described in a 24-page booklet. Each unit in the *Melco* multiple system is controlled separately to provide the right temperature for different areas. *Melchoir*, *Armstrong*, *Dessau*, *Inc.*, *Ridgefield*, *N.J.*

* Additional product information in Sweet's Architectural File

more literature on page 190



Now! Von Duprin Fire Exit Hardware for single doors up to 4'0" wide...pairs of doors up to 8'0" wide. This exclusive concealed vertical rod and mortise lock combination can be used with several Von Duprin crossbar assemblies. Catalog information will soon be available. Write for your bulletin on this 1½ hr. (B), ¾ hr. (C), 1½ hr. (D), ¾ hr. (E) Von Duprin Fire Exit Hardware.



VON DUPRIN DIVISION • VONNEGUT HARDWARE CO. 402 WEST MARYLAND • INDIANAPOLIS 25, INDIANA

Factory Balanced—Ready to Use NEW ANEMOSTAT Mechanical Constant Volume Boxes, Type HV

Designed and developed for today's high velocity dual duct air conditioning systems, the Anemostat single motor HV mixing box is unexcelled for material, quality and performance. Pre-balanced and factory calibrated to operate consistently within $\pm 5\%$ of required air quantities, the Anemostat HV unit is ready for immediate operation upon installation.

The Anemostat HV mixing box requires only one pneumatic operator; the mechanical constant volume device* does the rest. This all metal device offers these unique design and construction features:

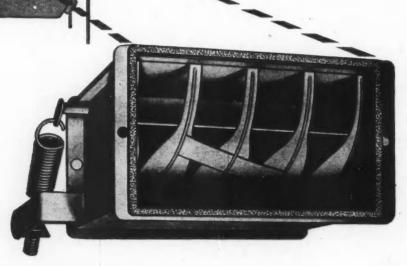
- 1 Built to last a life time, with corrosion-resistant parts, it requires no maintenance.
- 2 Allows for simple field adjustment to meet changing air requirements.
- 3 Operating engineers don't have to worry about replacing worn fabrics, nor is there any perforated metal to clog and impede efficiency.

The Anemostat HV mixing box is available for a wide range of air capacities. Write for Anemostat Bulletin Mech-70 today.

*Patent Applied For

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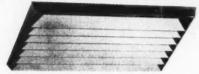
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THE FIRST ALL EXTRUDED ALUMINUM TYPE D DIRECTIONAL DIFFUSER



SQUARE and RECTANGULAR DESIGNS



Waterloo Style DM One Way Flow Bevelled Frame



Waterloo Style DD Two Way Opposite Flow Drop Collar Frame



Waterloo Style DF Three Way Flow Flange Frame



Waterloo Style DL Two Way Corner Flow Lay-on Frame

* EASIEST TO INSTALL

★ ONE-THIRD THE USUAL WEIGHTbecause of aluminum construction

* LONG-LASTING All extruded aluminum

* 5 FRAME STYLES • 14 CORE PATTERNS All cores removable and interchangeable



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PERFORMANCE PROVED BY ANEMOSTAT

in the finest laboratories in the air conditioning industry

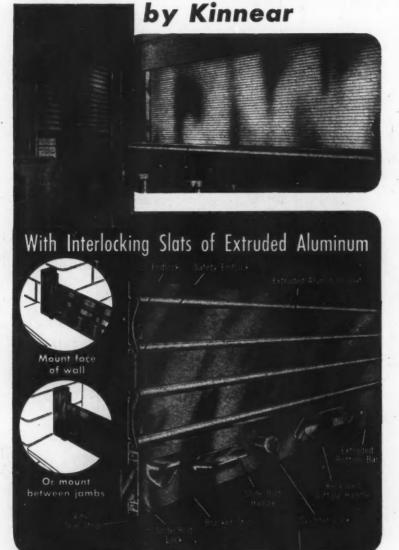
7-61 AVAILABLE ON REQUEST.

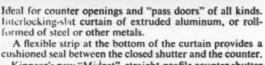


WATERLOO REGISTER COMPANY, INC.

P. O. BOX 147, WATERLOO, IOWA

Counter Shutters





Kinnear's new "Midget" straight-profile counter shutter slat combines extra eye appeal with space-saving, coilingupward action. No usable space is wasted in the interior, exterior, or overhead.

Kinnear Metal Rolling Counter Shutters are built to fit each individual opening, in any practical size,

KINNEAR Saving Ways in Doorways

The KINNEAR Mfg. Co. FACTORIES: 1860 80 Fields Ave., Columbus 16, Ohio

1860 80 Fields Ave., Columbus 16, Ohio 1742 Yosemite Ave., San Francisco 24, Calif. Offices and Agents in All Principal Cities

Office Literature

continued from page 186

Plywood Joints

A laboratory report gives performance details on tongue and grooved joints that can eliminate blocking for edge support of plywood roof and wall sheathing. Technical Dept., Douglas Fir Plywood Assoc., Tacoma 2, Wash.*

Stainless Steel Sinks

Stainless steel sinks for both homes and institutions are described in a 40-page catalog which includes detailed drawings and specifications. Carrollton Mfg. Co., Carrollton, Ohio

Concrete Additives and Finishes

Description, instructions and specifications for Ceresit's line of concrete additives, colorants, sealers, repair materials, etc. are given in a 26-page reference manual. Ceresit Corp., 3227 S. Shields, Chicago 16, Ill.*

Exposed Grid Suspension Systems
Specifications and illustrated installation instructions are given in a
catalog covering acoustical grid suspension systems with Lev-O-Matic
bridging devices which require no
tools. Eastern Products Corp., 1501
Wicomico St., Baltimore 30, Md.*

Elevated Floor

An elevated modular floor designed for use in electronic computer installations, or wherever extensive under-the-floor cables are needed, is described in a bulletin from Strato-Floor. The floor is designed to offer greater strength and rigidity without excessive bulk or weight. Strato-Floor, Inc., 795 E. 152nd St., Cleveland 10, Ohio

Woodwork Standards

A 75-page booklet for architects and specification writers is available giving standards for the three different grades of woodwork. Architectural Woodwork Inst., 332 S. Michigan Ave., Chicago 4, Ill.

* Additional product information in Sweet's Architectural File

Literature Requested

Wilmore, Hudson and Luke, Structural Engineers, Stallings Bldg., Birmingham, Ala., wish to be placed on mailing lists for literature and catalogs published by manufacturers of building materials.



...give you a strong, rigid frame in days, not weeks!

V-LOK interlocks! No field welds, no bolts, no rivets needed. Just a sledge blow seats V-LOK'S deep end connections securely. No wonder V-LOK buildings break all records for framing and roofing in! The V-LOK system is variable to meet every design and function requirement . . . V-chord sections are nailable for faster, easier decking.





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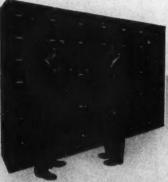


SOURRE D COMPRNY

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WORLD'S LARGEST All-Electric BUILDING

Atlanta may well be proud of this beautiful structure. Its 23 stories contain nearly a million square feet of floor space—largest commercial building in the South—twice the size of any other office building in Atlanta. One of its most outstanding features—it is heated, as well as air-conditioned, by electricity. Square D electrical distribution and control equipment is on duty throughout this magnificent building.



Above • Square D Field Engineer Gene Chapman and Electrical Engineer Morris Harrison inspect one of the building's five SQUARE D CONTROL CENTERS.



There are 140 SQUARE D LIGHT-ING PANELBOARDS like this one, strategically-located throughout the building.



SQUARE D MAIN SWITCHBOARD. 80 feet long, rated 16,000 amperes at 480 volts. Five ans of SQUARE D BUS DUCT (upper left) distribute he building. Checking final installation are Frank Smith and Robert Allison of Brooks-Allison, **Electrical Contrac** tor, and Square D Field Engineer Gene Chapman.

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ADJUSTABLE SPEED DRIVES BUSWAYS & WIREWAYS CIRCUIT BREAKERS **CONTROL CENTERS** CRANE & HOIST CONTROL DISTRIBUTION SWITCHBOARDS ELECTRIC TRUCK CONTROL HIGH VOLTAGE CONTROL LAUNDRY CONTROL LIFTING MAGNETS LIGHTING AND POWER PANELBOARDS LIMIT AND FOOT SWITCHES MACHINE TOOL CONTROL MAGNETIC BRAKES METER MOUNTINGS MOTOR STARTERS PRESS CONTROL PRESSURE, FLOAT, & VACUUM SWITCHES **PUSHBUTTONS** RELAYS AND CONTACTORS RESISTORS SAFETY SWITCHES SERVICE ENTRANCE EQUIPMENT STAGE DIMMERBOARDS STATIC CONTROL STEEL MILL CONTROL SWITCHGEAR & UNIT SUBSTATIONS SYNCHRONOUS MOTOR CONTROL TERMINAL BLOCKS TEXTILE MACHINE CONTROL **VOLTAGE TESTERS** WELDER CONTROL

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pall bears the label of the Underwriters' Laboratories, Inc. as a fire retardant paint

Lyt-all Fire Retardant Paint is a new and exceptionally beautiful flat wall coating made by Pratt & Lambert-Inc. It looks, wears and washes like the finest decorative coating yet also retards the spread of flame on combustible surfaces.

Specify Pratt & Lambert Lyt-all Fire Retardant Paint for walls and ceilings in schools, hospitals, factories, public buildings, hotels, apartments, motels, stores, as well as residences.

For descriptive color card and complete specifications, ask your P&L representative or write: Pratt & Lambert-Inc., 75 Tonawanda Street, Buffalo 7, New York; 254 Courtwright St., Fort Erie, Ontario.



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Dynafite is fully automatic . . . thoroughly reliable. Every run is as precisely controlled as those that preceded it, and those that will follow . . . and so smooth you barely sense acceleration and deceleration. Dynafite is a development of Haughton Elevonics*, which is shaping the new technology in vertical transportation. Ask your Haughton representative to tell you about it. Or, write today.



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Division of Toledo Scale Corporation Toledo 9, Ohio Offices in Principal Cities *Houghton's advanced program in observer systems research and ongranceing, with specific compliants on the creative application of efectional devices and instrumentation to bettermost of systems design and performance. Registered in U.S.









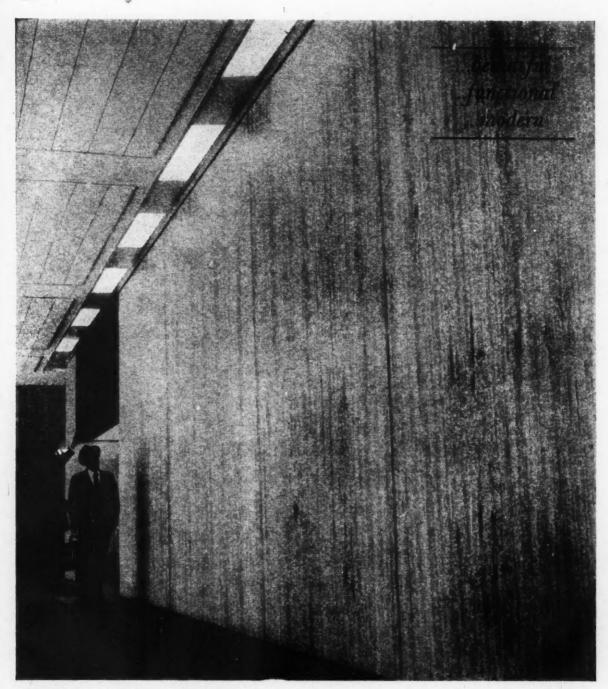
VOGT PACKAGE UNIT STEAM GENERATORS

are available in capacities of 10,000 pounds of steam per hour and above for either forced draft or induced draft with gas or oil, or combination gas-oil burners. Completely shop assembled and require only piping, electrical, and stack connections to place in operation. Available in three standard pressures of 175, 250, and 375 pounds S.W.P. Pressure tight steel casings permit outdoor operation, if desired.

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MELAMINE LAMINATED PLASTIC vertical panels are available in an endless range of decorator colors and patterns featuring exclusive designs, such as deep tones, pastels, mosaics; marbles and wood grains.

Melamine Laminated Plastic resists scratching, denting, chipping, cracking, moisture, acid, burns and stains...never needs painting or finishing...and can be cleaned with a damp cloth. Applications include wall paneling, wainscoting, partitions, shower stalls, push and kick plates in homes, stores, hospitals, hotels, churches and banks.

Not limited to flat surface use, decorative melamine laminates can be formed to simple and compound curves, concave or convex.

They are bonded to a substrate, such as plywood, or in unbonded form—bonding done on the job.

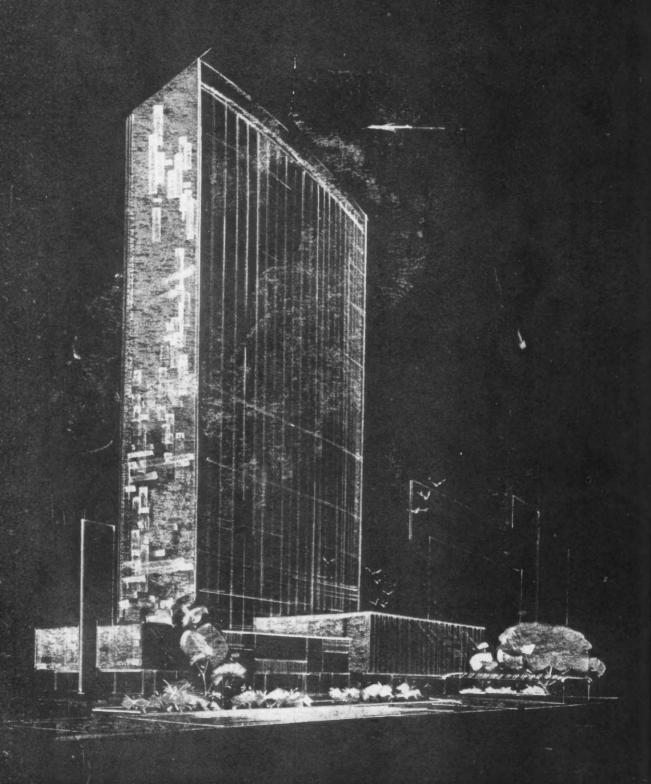
Monsanto supplies the resins used in these decorative laminates. Write for your copy of the "Melamine Laminate Plastic AIA File No. 23" and a list of leading laminate manufacturers.

MONSANTO CHEMICAL	COMPANY.	Plastics	Division, Roo	m 1062.	Springfield 2	, Mass
Please send me AIA File	No. 23 on M	lelamin .	Laminated P	lastic:		

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MONSANTO builder in PLASTICS®

EFFICIENCY IN THE OFFICE



TUTTLE & BAILEY AIR DISTRIBUTION EQUIPMENT

has been proved in every kind of installation

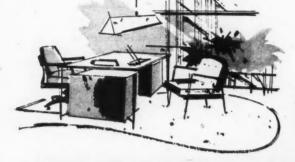
The broad range of T&B air distribution devices and accessory equipment for heating, cooling and ventilating answers every requirement of the architect, engineer and client. As the largest full-line manufacturer, T&B offers the precise piece of equipment for each job... setting the highest standards of appearance and performance.

Write for the name and address of the Factory Office or Sales Representative nearest you.

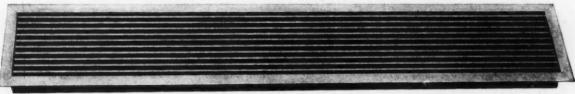


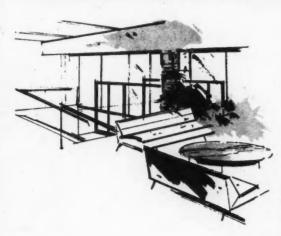
















TUTTLE & BAILEY

Division of Allied Thermal Corporation New Britain, Connecticut

Tuttle & Bailey Pacific, Inc., City of Industry, Calif.

On the Calendar

December_

- 18th Annual National Association of Home Builders Convention-Exposition - McCormick Place, Chicago
- Building Research Institute 1961 Fall Conferences-Shoreham Hotel, Washington, D.C.
- 14-15 Conference on soil mechanics and foundations, presented by

the University of Wisconsin Extension Division-Madison.

January

- 22-25 National Plant Engineering & Maintenance Show and Conference - Convention Hall. Philadelphia
- 25-27 Annual meeting, Society of Architectural Historians -

29ff Semi-annual meeting, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.; through Feb. 1-Chase-Park Plaza Hotel, St. Louis, Mo.

- 29-30 17th Annual Short Course in Residential Construction, sponsored by the University of Illinois Small Homes Council-Building Research Council in cooperation with the Division University Extension: theme: "New Methods and Materials for Better Home Building" - Champaign - Urbana campus, University of Illinois
- 30ff 18th Annual Technical Conference, sponsored by the Society Plastics Engineers; through Feb. 2-Penn Sheraton Hotel, Pittsburgh

February

12-15 12th Exposition of the Air-Conditioning and Refrigeration Industry, sponsored by the Air-Conditioning and Refrigeration Institute - Great Western Exhibit Center, Los Angeles

Office Notes

Offices Opened

Edwin M. Stitt, A.I.A., Registered Architect, formerly with Charles Bacon Rowley & Associates, Inc., announces the opening of his office at 8528 Mentor Ave., Mentor, Ohio.

William Smull, A.I.A., has reopened his office for the general practice of architecture at 575 Madison Ave., New York 22.

Leo Kornblath Associates has opened an office at 1819 L Street N.W., Washington, D.C., the third since the architectural-interior design firm was founded a year ago. Other offices are in New York and Hato Rey, Puerto Rico.

Pasqual F. Notartomaso, Registered Architect, announces the opening of his new office at Scranton National Bank Building, Rm. 1102, Scranton 3, Pa.

New Firms, Firm Changes_

Gerald D. Sorenson, licensed arcontinued on page 206



Van helps improve flow and service...save labor at club

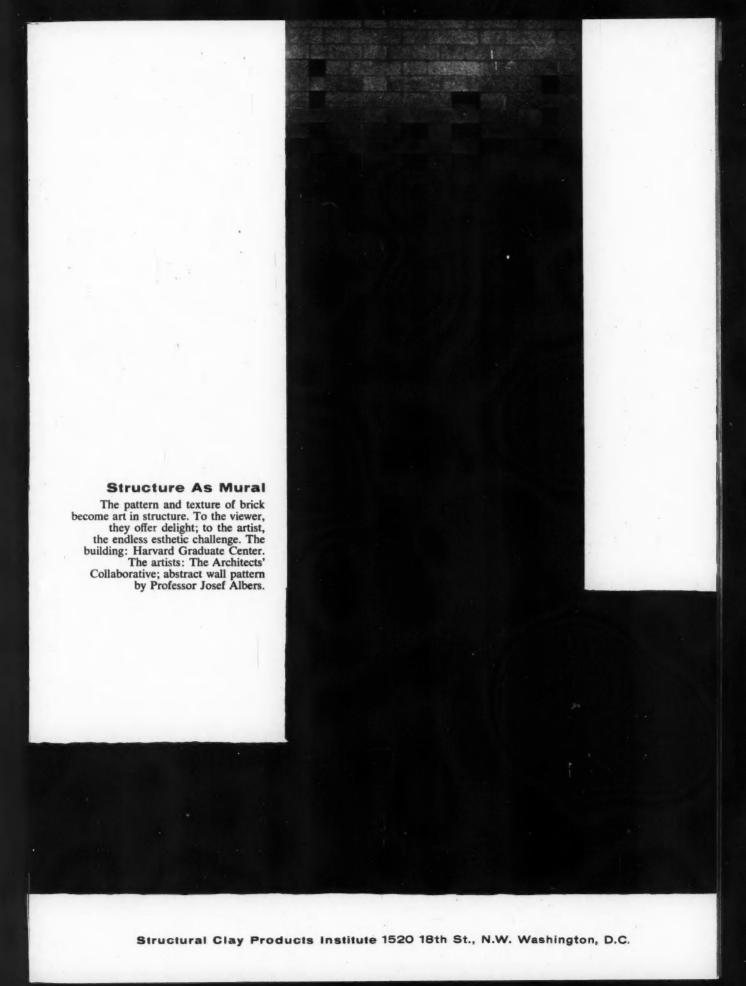
Growing food service establishments and their architects will find in Hyde Park Golf and Country Club's expansion convincing evidence of Van's ability to help in kitchen engineering; in design, fabrication and installation of food service equipment.

The problem: a smooth-running kitchen that can feed in several directions and operate with small crew or capacity staff after addition of dining room, new grill rooms and patio serving sandwiches and steaks.

Van kitchen engineers collaborated to accomplish the shining facilities illustrations show . . . substantially of stainless steel . . . for clean working surfaces, easy cleaning, long life. You have tough food service problems? Use Van's century of experience.

THE JOHN VAN RANGE CO., 429 Culvert St., Cincinnati 2, Ohio.

SERVICE EQUIPMENT





STORM SASH OF EXTRUDED RIGID GEON VINYL. Provides advantages that sash could never offer before. The white stays white—no painting needed, no finish to chip or peel. Will not blacken or become pitted. The color is compounded in—so that the beauty goes all the way through, is not just on the surface. The insulating characteristics of vinyl insure the elimination of sash condensation under normal conditions.

Extrusions for windows like these can be made in a variety of shapes—with plenty of rigidity for different types of windows. It's another way that Geon vinyl improves a product. If you buy windows—or make them—you'll want more information. Write Department ND-9, B. F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical

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for Strength
. . . Economy
. . . Versatility

One of the many advantages of designing with Bethlehem open-web steel joists is the ease with which you can install pipe and conduit. As shown above, the open-webs make it so simple to pass through pipe, wires, heating lines—in any direction. And installation of recessed lighting fixtures, plus their wiring, is also simplified.

Steel joists are incombustible, and they can't warp or sag. Termites can't eat them. Bethlehem joists are completely fabricated in the shop, reach the job site ready for immediate placing.

Full details on steel joists, and Slabform, Bethlehem's solid steel centering that can save you money and material, are available at any Bethlehem sales office. We'll be glad to talk over your building plans with you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



Sun Self-Serv Drug Stores specify

TERRAZZO

for new Supers

Study by Chicago-area chain proves that asphalt tile costs 6.8% more, vinyl 19.8% more, over 10-year period.

Terrazzo floors will be used in the chain of super drug stores planned by Sun Self-Serv Drug Stores, a division of General Stores Corporation. Five of these stores with a total floor area of 40,000 square feet have already been opened in the Chicago area.

The decision to use Terrazzo was the result of a study comparing total cost, including installation and maintenance, of Terrazzo, asphalt tile and vinyl tile floors in drug stores. Savings of 20c per square foot with Terrazzo vere revealed. Later years will show an even greater saving, the Sun Self-Serv Drug Stores' study indicates, because asphalt tile must be replaced every five years, while Terrazzo will last the life of the building.

Results of the study are summarized below:

Comparison of Total Cost of Terrazzo and Asphalt Tile Floors Over 10-Year Period

ASPHALT TILE FLOOR® TERRAZZO FLOOR Total installation cost per sq. ft. for 10 years .62 Total installation cost per sq. ft. for 10 years 1.40 (average original installation cost of \$.31 per sq. ft.; (average original installation cost of \$1.40. must be replaced every 5 years) Replacement not required) Total cleaning cost per sq. ft. for 10 years Total cleaning cost per sq. ft. for 10 years 1.70 1.46 (total daily cleaning cost per sq. ft. of \$.000466 (total daily cleaning cost per sq. ft. of \$.000399 x 365 days x 10 years. Includes daily cost per sq. x 365 days x 10 years. Includes daily cost of ft. of \$.000366 for labor, \$.000100 for supplies) \$.000366 for labor, \$.000033 for supplies) Cost per sq. ft. of stripping, waxing, buffing of floor Cost per sq. ft. of stripping floor 3 times in 10 years OR every 90 days for 10 years .80 (cost per sq. ft. of \$.02 x 4 times yearly x 10 years) Total cost per sq. ft. including installation and main-Total cost per sq. ft. including installation and maintenance over 10 year period. 3.12 tenance over 10 year period. 2.92

Vinyl tile used in some Sun Self-Serv Drug Stores has a total cost over a 10-year period of 38c per square foot more than asphalt tile and 58c per square foot more than Terrazzo.

Free AIA kit upon request. Field representatives available for consultation. Catalogued in Sweet's.

Member Producers' Council

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION

503 N.A.D.A. Building, 2000 K St., N.W., Washington, D.C.



Mother House, Sistens of Charity

ROCKINGHAM, NOVA SCOTIA

The beautiful hillside location overlooking the Bedford Basin offers a magnificent setting of peace and serenity enhanced only by the architectural grace and dignity of this modern building.

SELECTED: SG-190V Automatic Door Holders, for simplified control and adjustable holding power. Heavy duty arms and brackets and extra sized sex bolts insure long life. Easily accessible control lever for hold open may be set with door on open or closed position. Door may be released by "push-pull" while control remains engaged, until

Manually set.

Also selected were SG Exit Devices with Uni-Trim, used on all exterior doors, for safe, dependable exits at all times.



Architect:
FRANCO CONSIGLIO
Monfreel, Guebec
General Contractor:
J. L. GUAY
Montreel, Guebec
Hordware Supplier:
WM. STAIRS, SON
& MORROW, LONHolifax, Neve Scotia
Hordware Consultant:
F. C. ELLIS
Holifax, Neve Scotia

SARGENT & GREENLEAF, INC. - ROCHESTER 21, NEW YORK



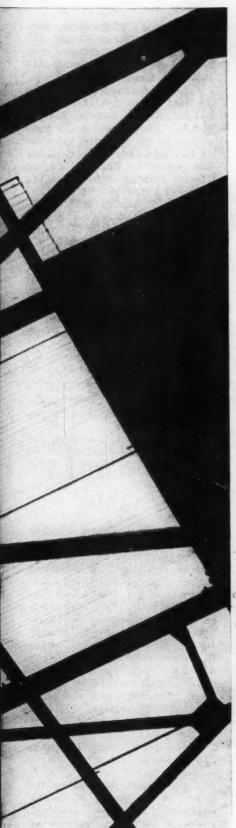








204 ARCHITECTURAL RECORD December 1961



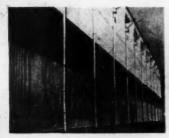
LOOK UP TO ALSYNITE

Daylight your buildings with shatterproof Alsynite—eliminate breakage, cut maintenance 30% to 60%

Things start looking up—the day you start designing with Alsynite. This reinforced translucent panel offers a modern approach to daylighting plants and offices, plus some long-term advantages that mean continuing client satisfaction. Alsynite transmits only diffused glare-free light—lets you design your buildings with natural illumination that eliminates the hazards of deep shadows and glaring hot spots, while affording client savings in electricity.

Just as important—Alsynite is shatterproof! In skylights, sidelights and sash it eliminates replacement and shaves maintenance costs to effect savings of from 30% to 60%. Made in a wide variety of corrugations and shapes to nest with other standard building materials, or in flat panes to fit standard sash, or to special requirements on order. Alsynite is reinforced with millions of glass fibers, can be installed without special handling or tools.

Alsynite's own guarantee is backed by the world-wide reputation of RCI, one of the great names in chemicals. Talk over your requirements with your nearest distributor, listed in the Yellow Pages under plastic products. Or for free literature, write Alsynite, San Diego 9, Calif., Dept. AR-1261.



EASY TO INSTALL AND MAINTAIN! No special handling or tools needed. Alsynite keeps costs down!



CONTEMPORARY APPEARANCE! Alsynite adds much to the appearance of buildings like the JFG Instant Coffee Plant, Knoxville, Tennessee.

ALSYNITE TRANSLUCENT PANELS



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The Record Reports

continued from page 198

chitect and civil engineer, for the past six years affiliated with Brandow & Johnston, Los Angeles, has joined the staff of Burke, Kober & Nicolais, Los Angeles architectural and engineering firm.

The engineering and architectural firm of Praeger-Kavanagh-Waterbury, 126 East 38th St., New York City, has named Charles D. Morrissey to the partnership.

Mark T. Jaroszewicz, A.I.A., has joined the firm of Tarapata-Mac-

Mahon Associates, Inc., Architects and Engineers, Bloomfield Hills, Mich., as a senior designer and project administrator.

William J. Bain Jr., A.I.A., has been admitted to partnership in the firm of Naramore, Bain, Brady & Johanson, Architects and Engineers, Seattle, Wash.

Angus McCallum, a former partner in the Kansas City architectural firm of Kivett & Myers & McCallum, has returned to independent practice with offices at 1221 Baltimore, Kansas City, Mo. Clarence Kivett and Ralph E. Myers will continue their practice as Kivett & Myers at 1016 Baltimore, Kansas City.

Following the death of Mr. Gordon M. West, in the firm of West and Switzer, Roy J. Switzer, B.Arch., M.R.A.I.C., will carry on the business under the same firm name for an indefinite period. The offce has been moved to Rm. #1, Capitol Theatre Building, 2510 Yonge St., Toronto 12, Ontario.

William E. Dunlap and John R, Weese have been elected general partners in the firm of Skidmore, Owings & Merrill. Mr. Dunlap will be with the Chicago office and Mr. Weese, with the San Francisco office

Edward J. Tedesco Associates, Architects, 15 Pleasant St., Woburn, Mass., announce the association of Emmanuel J. Rempelakis and Frank Paul Orlando.

New Addresses

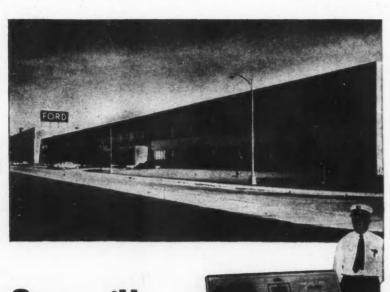
Vincent C. Cerasi, Landscape Architect-Land Planner, 130 Lake St., White Plains, N.Y.

Waisman Ross & Associates, Architects, Engineers, Planners, 10 Donald St. N., Winnipeg 1, Manitoba.

Elections

The Industrial Designers Institute elected the following national officers for two years terms at the Board of Trustees annual meeting in Boston: chairman, John Vassos, F.I.D.I., Norwalk, Conn.; president, Leon Gordon Miller, F.I.D.I., Leon Gordon Miller Associates, Cleveland, O.; executive vice president, Jon W. Hauser, Jon W. Hauser, Inc., St. Charles, Ill.; secretary, Theodore C. Clement, Eastman Kodak Company, Rochester, N.Y.; treasurer, Yasha Heifetz, Clinton, Conn.; regional vice presidents: Joseph Parriott, F.I.D.I., Westport, Conn.; Montgomery Ferrar, Southfield, Mich.; and Donald W. Brundage, Brundage Associates, San Francisco, Calif.

Officers elected for 1962 by the Council of the Society of Plastics Engineers, Inc. are: president, James R. Lampman, manager of continued on page 216



Hutocall
SECURITY SYSTEM
gives new AUTO PLANT
advanced protection features

Ford Motor Company's modern Chicago Stamping Plant is typical of industry's trend to Autocall's advanced plant protection. Here security personnel in the control center keep their fingers on the pulse of the entire plant, maintain maximum security around the clock.

This trend-setting Autocall system includes automatic sensing devices which detect dangerous or irregular conditions and instantly transmit them into the control center. Here they are immediately printed (in plain English) on the Autocall-Howe print recorder, giving cause, location and time of the signal. All signals are positive, non-interfering and successive. If two or more signals are actuated at

the same time, each operates in turn and none are lost. In addition the system provides patrol monitoring and two-way communication throughout the entire plant.

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SCULPTURED STRUCTURAL GLAZED TILE

The recent Stark Sculptured Tile Contest for Architects and Contractors resulted in hundreds of imaginative adaptations and uses for Sculptured Structural Glazed tile.

Several of the winning *entries are combined in this illustration. One is a unique overall wall pattern using Stark's "Classic" design tile along with regular units. Another award idea used the same "Classic" design, combined with brass inserts throughout a complete series of church "furniture."

This nationwide contest again pointed out the almost limitless design possibilities of the only structural unit that offers inherent strength, pattern, economy and a glazed finish for beauty and minimum maintenance.

New . . . Now Available . . . Design Ideas—8-page sketchbook of design suggestions by leading architects showing unique and dramatic installations of Sculptured Structural Glazed Tile. Send for your copy today!

*Judging panel consisted of two registered Architects and a leading Contractor—Cleveland, Ohio, Names of judges and contest winners available on request.

STARK

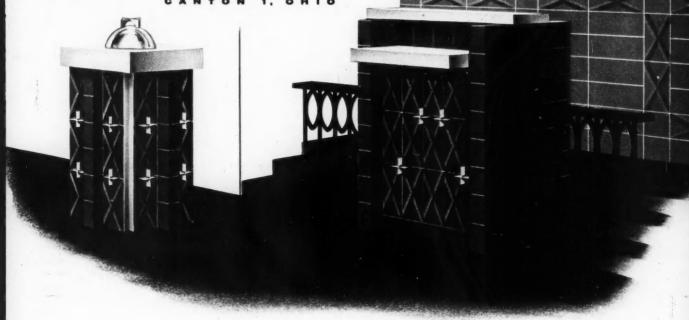






STANDARD SCULPTURED STARKUSTI

CERAMICS, INC.



"I don't know who you are.

I don't know your company.

I don't know your company's product.

I don't know what your company stands for.

I don't know your company's customers.

I don't know your company's record.

I don't know your company's reputation.

Now-what was it you wanted to sell me?"

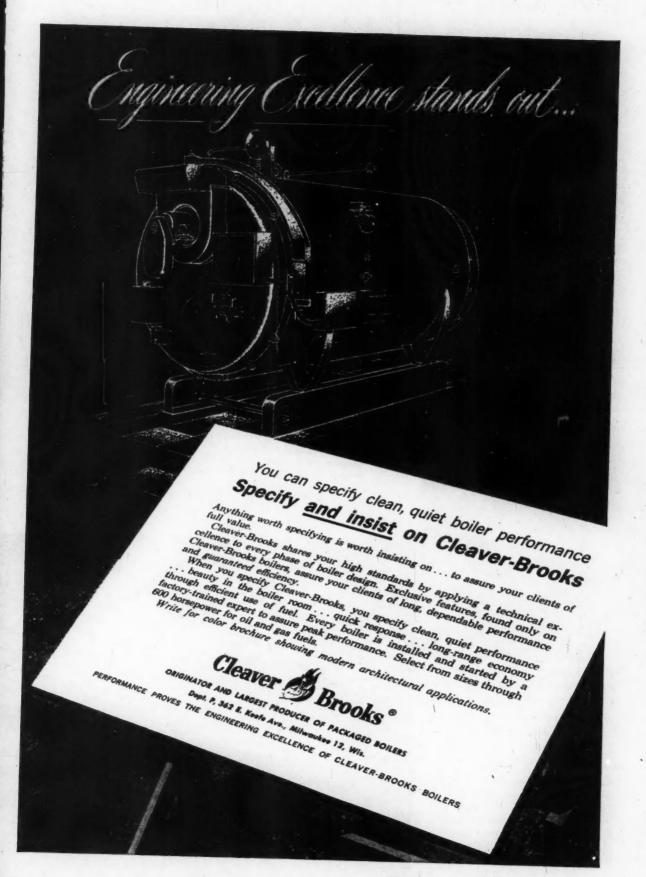


MORAL:

Sales start before your salesman calls—with business publication advertising.

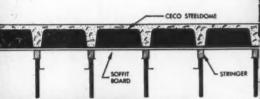


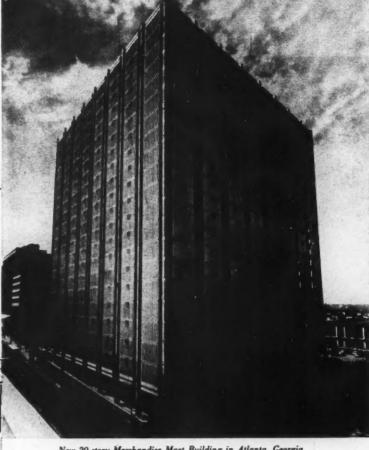
McGRAW-HILL PUBLISHING COMPANY, INC., 330 WEST 42nd STREET, NEW YORK 36, N.Y.



In construction products
Ceco engineering
makes the
big difference







New 20-story Merchandise Mart Building in Atlanta, Georgia, utilizes Ceco Steeldome construction.

Architect: Edwards & Portman Engineer: Jack Wilborn

Contractor: Consolidated Realty Investments, Inc.



Dramatic effect is created with "open-grid" wased for patio area of newly constructed North Central High School, Miami, Florida. Architect: Polevitzky, Johnson & Associates Engineer: H. J. Ross and Associates Contractor: Thompson & Polizzi Construction Company





In Washington, D.C., the Riddell Building was designed with floors and ceilings of Ceco Steeldome construction.

Structure at left end is the Bank of Commerce, an earlier Ceco floor-framing project.

Architect: Corning, Moore, Elmore & Fischer | Contractor: Standard Construction Co., Inc.

You can achieve long spans, heavier loads, unusual ceiling decor when your designs call for...

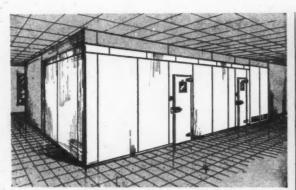
Ceco Steeldome 2-way concrete joist construction

There's a trend to two-way dome slab construction. From coast to coast you see "waffle-type" exposed ceilings—in commercial buildings, banks, apartments, hospitals, schools, churches, parking garages . . . in new buildings of every description. Why? Two reasons: (1) two-way dome slab construction permits economical long spans and heavier loads, and (2) the Ceco Steeldome way of forming this construction offers opportunities for unusual interior styling. You can create special ceiling effects at

low cost by painting the smooth concrete surfaces, or spraying on acoustical material. You can apply acoustical tile—or design for "open" treatment. There are many possibilities awaiting your skill.

For additional information about Ceco Steeldome construction, as well as one-way construction with flange-forms, adjustables and longforms, ask for your copy of newly published 72-page manual 4002-C, "Monolithic Reinforced Concrete Construction with Ceco Service."

Ceco Steel Products Corporation | 5601 W. 26th Street, Chicago 50, Illinois steelforms • concrete reinforcing • steel joists • curtainwalls, windows, screens, doors • steel buildings • roofing products • metal lath



Installation in Wyeth Laboratories plant near Radnor, Pa. Specifications prepared by the Wyeth Engineering Department.

Bally pre-fab walk-ins

all-metal coolers and freezers

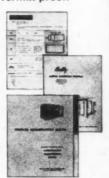
Sectional construction! Expandable any time! Costs less than built-ins!*

Newest concept in refrigeration storage makes construction of "built-ins" on the job obsolete. Precision made pre-fab sections permit installation anywhere, any size, any shape. Easy to increase in size or disassemble for relocation. Aluminum or galvanized steel are standard finishes. Stainless Steel and acid-resistant Porcelain also available. All finishes remain sanitary ... odor-free ... rodent and vermin proof.

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Includes guide for specification writers . . . 16-page Walk-In book . . . portfolio of 48 installation drawings and specifications. Also included is a Walk-In description form to request plans and specifications from Bally engineers for individual installations. Write on your company letterhead.

See Sweet's File section 26a/Ba.



*Based on cost scales in Metropolitan areas.



Bally Case and Cooler, Inc. Bally, Pennsylvania



J. Linerd Congress, Architect Chestnut Hill, Pa.

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AVAILABLE IN REZILL-CUSH* SYSTEM—
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See SWEET'S FILE Specs. #13J/CO.

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Research Working with a knowledge of hospital problems and procedures gained from equipment installations in more than a hundred countries of the world . . . Amsco Research investigates, evaluates and recommends techniques for the highest standards of patient protection.

Six full-time Nurse Consultants assure the vital Consultants quality of practicality in every procedure involving personnel training.

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> Literature or consultation is freely available from our Technical Projects Division





PPG SOLARGRAY Plate Glass pays big dividends in new Harris Bank Building

More than an acre of PPG Solargray Polished Plate Glass is at work in the Harris Trust and Savings Bank Building in Chicago. Combining utility with beauty, PPG Solargray truly is "at work."

PPG Solargray is contributing to interior comfort in the Harris Bank Building because it is a heat-absorbing and glare-reducing plate glass. Its softgray tint absorbs about 50% of the sun's heat and substantially reduces the amount of sun glare entering the building. Yet it permits plenty of light to come through, allowing a proper balance of natural and artificial lighting. And Solargray provides this glare-and heat-control with a neutral gray tint that requires no special interior color planning.

While SOLARGRAY was developed to control the sun's heat and glare, its delicate color adds beauty to any building. The use of PPG SOLARGRAY Plate Glass in the Harris Bank Building helps give the building its distinctive beauty.

Other PPG Glass Products in the building include ½" clear Polished Plate Glass and, for accent, white suede finish PPG CARRARA® Structural Glass that will retain its color and beauty permanently. Your Pittsburgh Plate Glass architectural representative will give you specific data on any PPG product. For a quick look, check the Pittsburgh Glass Products Catalog in Sweet's.



Architects-Engineers: Skidmore, Owings & Merrill, Chicago, III.
Contractor: Turner Construction Co.
Glazed by: Hooker Glass and Paint Manufacturing Company



PITTSBURGH PLATE GLASS COMPANY

Paints • Glass • Chemicals • Fiber Glass
In Canada: Canadian Pittsburgh Industries Limited

The Record Reports

continued from page 206

General Electric Company's Organic Chemical Engineering Materials and Process Laboratory, Syracuse, N.Y.; vice president, engineering, John M. Berutich, sales engineer, Haveg Industries, Inc., Louisville, Ky.; vice president, administration, Richard B. Bishop, consultant and research associate, Holy Cross College, Worcester, Mass.; secretary, George P. Kovach, manager, Product Development, Foster Grant Co., Inc., Leominster, Mass.; and treasurer, Samuel H. Greenwood Jr., sales manager, Press Div., F. J. Stokes Corp., Philadelphia, Pa.

Education Notes

Eight new instructors joined the University of Detroit's Department of Architecture this semester. They are: Louis F. Michel, Ann Arbor; Robert Camblin, Detroit; Barry N. Merenoff, Royal Oak; Mark T. Jaroszewicz, Birmingham; John W. Plasko, Detroit; Jens J. Plum, Detroit; Morris A. Lifshay, Oak Park; and Denis C. Schmiedeke, Plymouth.

Edward H. Lyons was recently appointed supervisor of cooperative training for the University of Detroit College of Engineering and Architecture.

Martin L. Beck, F.A.I.A., practicing architect and president of the New Jersey State Board of Architects, has been named to the newly created post of director of planning and supervising architect of New York University.

Charles W. Harris has been appointed associate professor of landscape architecture for two years. effective Feb. 1, 1962, at the Harvard Graduate School of Design. At present Mr. Harris is in Italy as Chief of the Landscape Section in the Rome Office of the Architects' Collaborative International, Ltd., in the building of the University of Baghdad.

The following new appointments to the faculty for the 1961-62 scholastic year have been made in the Department of Architecture. University of Notre Dame: Julian E. Kulski, architect and city planner, a member of the A.I.A., American Society of Planning Officials, American Institute of Planners; Kenneth A. Featherstone, architect and design consultant, a member of the R.I.B.A.; Solomon J. Lim, with professional experience in architectural design, drafting, specification writing and supervision.

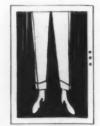
Soil Mechanics Conference To Be Held at Wisconsin U.

A conference on soil mechanics and foundations will be presented by the University of Wisconsin Extension Division, Madison, Wis., on Dec. 14 and 15. In a program designed for the practicing architect and structural engineer, guest lecturers will include: William G. Murphy, associate professor of Theoretical and Applied Mechanics, Marquette University; Ralph B. Peck, professor of Foundation Engineering, University of Illinois; B. K. Hough, consulting engineer, Soils and Foundation Engineering, Ithaca, N.Y.; and Don U. Deere, professor of Civil Engineering and Geology, University of Illinois.

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... probably the most industrious worker in multiple-floor buildings



here's why ... A dumb waiter lifts vertically loads of every description between floors faster and easier than any other method of transportation - just by pushing a button. It reduces work loads, saves valuable man hours and increases overall efficiency.

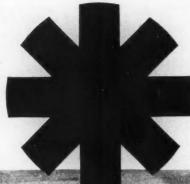
must, a dumb waiter must be carefully and soundly engineered. Emphasis should be on safety, sturdiness, heavy duty construction and most important - dependability.

You can protect your clients by specifications that will in- since 1893.

To stand the use and abuse that it sure this dependable service. Let Sedgwick study your lifting problem, make recommendations, submit suggested specifications and prepare preliminary sketches of hoistway requirements. This is a free consultation service based on Sedgwick specialized experience

See standard specifications and layouts in SWEETS 24a/Se

42 WEST 15TH ST., NEW YORK 11 NATIONWIDE REPRESENTATION



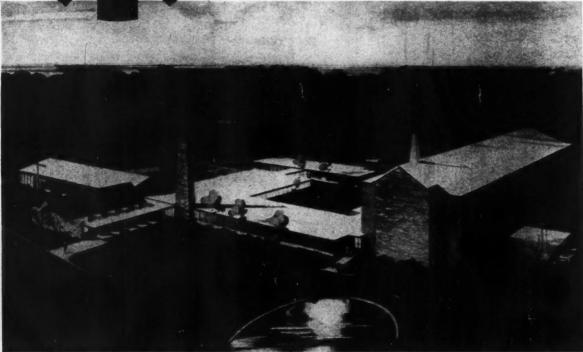
ROCKY RIVER PRESBYTERIAN CHURCH, Rocky River, Ohio

ARCHITECT:

John H. VonGunten Cleveland, Ohio

ROOFING TILE:

Weathered Brown Designer Tile by Ludowici-Celadon



* BUILDING
NOW COMPLETED

It may take seven years, (estimated completion date) to complete the final building of this church plant, and install the last piece of non-fading Ludowici-Celadon roofing tile. At that time, the difference in color and design between the first roofing tile laid and the last will be imperceptible. This type of quality control assures you continuity of design thereby maintaining the original concept.

Our consultant, in your area, is qualified to answer any questions on your present or proposed drawings.

Architects Consulting Department





NEW! Pilot-lighted directory on a new style G-E Master Selector Switch shows instantly which of 12 circuits are ON. Also has tiny locator light (permanently ON) that permits reading the directory and operating the switch in the dark.

From General Electric-new Remoteincrease lighting convenience in

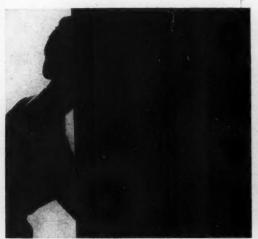
In homes, you provide step-saving convenience when you specify this modern low-voltage control system. All important lights can be controlled from a single location; and additional switches per light can be installed at surprisingly low cost.

In commercial buildings, G-E Remote-Control switching can reduce installation costs, make it easier to relocate office partitions, help lower the

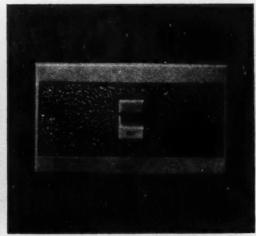
cost of operating and maintaining lighting circuits

And now, with this new, more complete line of General Electric switches, you have greater flexibility than ever before in designing a remote control system to your specific needs.

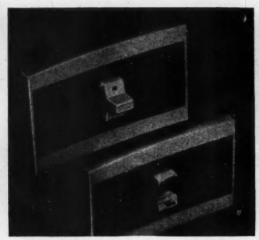
There's a new standard, push-button G-I Remote-Control wall switch, well marked for Or and OFF — plus a locking type — plus a trigge



NEW! Switches that are easy to find in the dark. Now G-E Remote-Control wall switches are available with or without built-in locator lights.



NEW! Switches with built-in red pilot light. This new type of G-E Remote-Control switch is just the thing for controlling "hidden" lights.



NEW! Trigger and locking types. If your customers prefer an up-and-down "trigger" to the standard G-E Remote-Control push button, they can have it. You can suggest the locking type to prevent children from operating dangerous power tools



NEW! "Plug-in" relay box. Provides quiet operation, easier tracing and changing of circuits if needed. It impresses customers—simplifies your wiring. bus bar connects relays to line voltage, automatically, as they're plugged in—to give you a neat, orderly installation.





Control Wiring Switches homes and commercial buildings

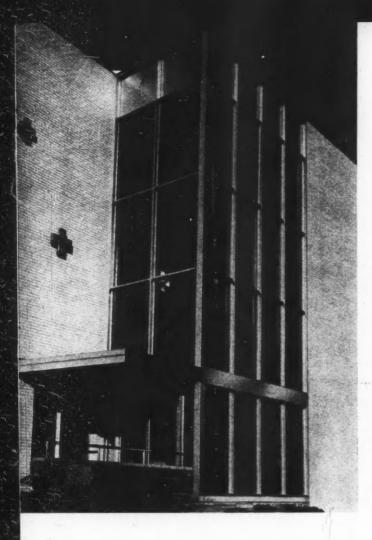
type. And each is available non-lighted, locator-lighted, or pilot-lighted.

In addition, there's the new pilot-lighted Master Selector Switch — extension switches — plus an interchangeable line.

For detailed information, call your nearest G-E distributor — or write to General Electric Company, Wiring Device Dept., Providence 7, R. I.

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GENERAL (ELECTRIC



Even on the coldest winter days in Milwaukee, the inner surfaces of the aluminum in this stairwell are condensation free! Despite aluminum's high thermal conduction . . is possible because all interior metal is separated from the outer wall metal with a special insulator in the extrusions. The stairwell grid is MARMET's Series 8602 INSU-WALL the only insulated curtain wall with a special insulator integrally fabricated into framing members at the factory . . . requiring no added labor for special assembly on the job site.

New MARMET INSU-WALL retains the beauty and permanence of finish achieved with aluminum curtain wall . . . yet cuts heat los through the high conduction factor of this metal by as much as 63%.

Still another advantage considered by the architect, was the strength provided by Insu-Wall for maximum glass area with a modern, thinline framing effect.

In the front and rear of the building, with large operating lites fitting five foot openings on centers, the architects chose MARMET's 5142 series with 2 inch tubular sash for maximum strength. A standard series, the 5142 offers such advantages without the high cost of a monumental framing system.

Typical INSU-WALL mullion, cross section. Dark area is special thermal barrier.

even below ZERO, this stairwell aluminum is condensation free!





- · Reduces heat loss through curtain wall metal in severe winter cold. Because the condensation problem does not exist with Insu-Wall, perimeter heating may be replaced with less expensive systems
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For additional information on the com-plete line of MARMET products—consult Sweet's Catalog File No. 3A or write to MARMET for catalog. Mar



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Red Cross Building



"Motherhouse" School of Sisters of Notre Dame, Wilton, Conn. Architect: J. G. Phelan and Associates, Bridgeport, Conn. General Contractor: The E & F Construction Co., Bridgeport, Conn. Painting Contractor: David H. MacKenzie, Inc., Bridgeport, Conn.

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George W. Raymond, Devoe Architectural Representative for Connecticut, New Jersey, Westchester County, N.Y.

concepts of color and efficient use of paint products are achieved.

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practical assistance

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finishes. He also arranged for the mixing of hundreds of gallons of special paint and colorants on the job site with Devoe Library of Colors Canisters. Result: each Devoe custom color was mixed in exact quantities as needed . . . saving costly time and avoiding paint waste.

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Stairwell of Polished Misco Wire Glass contributes to overall appearance as well as safety in the Fort Saunders Elementary School, Knoxville, Tenn.

Architect—Painter, Weeks & McCarty, Knoxville, Tenn.

For details, see your nearby distributor of quality glass or write for latest catalog. Address Department 7.

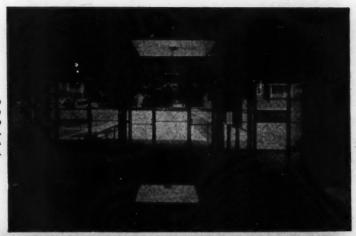






WORLD'S LARGEST

Impact and fire resistance are twin features of this Polished Misco Wire Glass Installation in Tennessee School for the Deaf, Knoxville, Tenn. Architect—Painter, Weeks & McCarty, Knoxville, Tenn.



MISSISSIP(PI, GLASS ...

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aylighting with SAFETY

Combining beauty, utility, and economy, Mississippi leads the way by making available an extensive selection of translucent glass patterns that do wonderful things with daylight. In addition, rugged Mississippi Wire Glass, whether for obscurity or clear vision, affords effective but inconspicuous fire protection while enhancing the appearance of any structure . . . when installed in partitions, skylights, stairwells, windows, doors, or wherever else fire and breakage protection is required. The versatility of Mississippi glass provides architects and engineers with a practical solution to virtually every daylighting problem, including safety with decoration, with heat absorption and with light diffusion and direction.



Polished Misco Wire Glass glazed in main entrance of Hellertown High School, Hellertown, Pa. Architect—Heyl, Band & Miller, Allentown, Pa. Contractor—Gottlieb-Schneider, Bethlehem, Pa. Glazing Contractor—Penn Allen Glass Company, Allentown, Pa.

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HUNTINGTON

where research leads to better products

Letters

continued from page 10

getting fed-up with this attitude. The art in fine architecture grows as much out of good engineering as from purely an artistic approach. If this were not true any artist might as well practice architecture. This in no way underrates the importance of either of these phases and does not exclude the many other social, eco-

nomic or environmental factors that must play their roles if true "Architecture" is to be achieved. If Pier Nervi, educated primarily as an engineer, can create some of the world's most magnificent and original architecture, there is every reason to believe that properly trained architectural engineers will also become leading practitioners in architectural design if they are given good architectural courses during their educa-

tion.

At the present time Pennsylvania State University is in the process of making major revisions to the architectural engineering curriculum. As has been mentioned earlier in this letter, I have been fighting changes made during the past ten years. These unfortunate changes have been primarily changes in the timing of courses. All architectural design courses are completed during the first three years of the five year curriculum. This has made it virtually impossible for any of the graduates to pursue an active career in architecture for they have completed all their architectural design before they have had an opportunity to learn any engineering and, during those final two years they have forgotten much of the fragmentary architectural design courses they were given.

When I, and most of the other architectural engineering graduates in our group took this course we had architectural design courses up to the day of graduation and at that time it was only a four-year course.

Our group believes you can be of great help to the "building" profession if you will carry on with the thought provoking questions you have raised in this article. We A.E. graduates are so few, it is imperative that we get all the help we can from those who agree with us.

Nathan Cronheim Cronheim & Weger Philadelphia

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By CRANSTON JONES Associate Editor, Time

Associate Editor, Time
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Maintenance is part of heating plant cost



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Weil-McLain Boilers for commercial, industrial and institutional installations are available for gas, oil, heavy oil, combination gaslight oil, or coal. For full information write Weil-McLain Company, Michigan City, Indiana, or see Engineers' Product File or Sweet's Architectural File.

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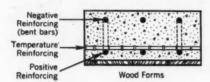
HERE IS CONSTRUCTION SPEED.

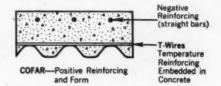
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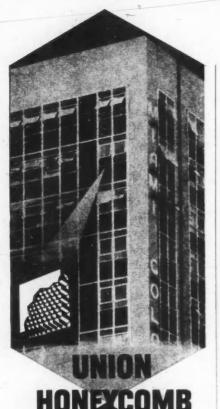


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Write for free brochure describing UNION HONEYCOMB and how it is being used.



232

Saarinen Memorial

continued from page 30

Let us hear now the wisdom of the man himself, spoken out of his heart to us for our profit and use, words which ruled his life, and might well shape ours:

It is on the individual, his sensitivities and understanding, that our whole success or failure rests. He must recognize that this is a new kind of civilization in which the artist will be used in a new and different. way. The neat categories of bygone days do not hold true any longer. His job requires a curious combination of intuition and crust. He must be sensitive and adaptable to trends and needs; he must be part of and understand our civilization. At the same time, he is not just a mirror; he is also a co-creator and must have the strength and urge to produce form, not compromise.

Architecture is not just to fulfill man's need for shelter, but also to fulfill man's belief in the nobility of his existence on earth. Our architecture is too humble. It should be prouder, more aggressive, much richer and larger than we see it today. I would like to do my part in expanding that richness.

I think of architecture as the total of man's man-made physical surroundings. The only thing I leave out is nature. You might say it is the man-made nature. Now this is not exactly the dictionary definition of architecture which deals with the technique of building, but this is mine. It is the total of everything we have around us, starting from the largest city plan, includes the streets we drive on and its telephone poles and signs, down to the building and house we work and live in and does not end until we consider the chair we sit in and the ash tray we dump our pipe in. It is true the architect practices only on a narrow segment of this wide keyboard, but that is just a matter of historical accident. The total scope of the job is much wider than what he staked his claim on. So to the question, what is the scope of architecture? I would answer: it is continued on page 240

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ASK POR Specification Shoot giving detailed description of the Model 2030 in-Wall Amplifier.

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Model XXM-4 Completely automatic, with dual-drive that speeds racks in and outprovides extra wash time without loss of speed or capacity. Automatic control of water and separation of power-wash and power-rinse streams mean cleaner dishes faster. Pumps designed with new-type packless seals and other advanced Hobart features contribute to all-around superior performance.



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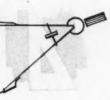
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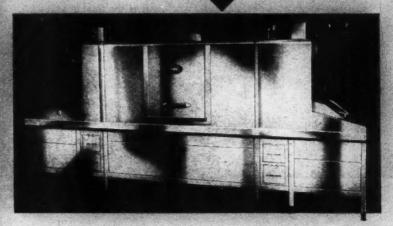


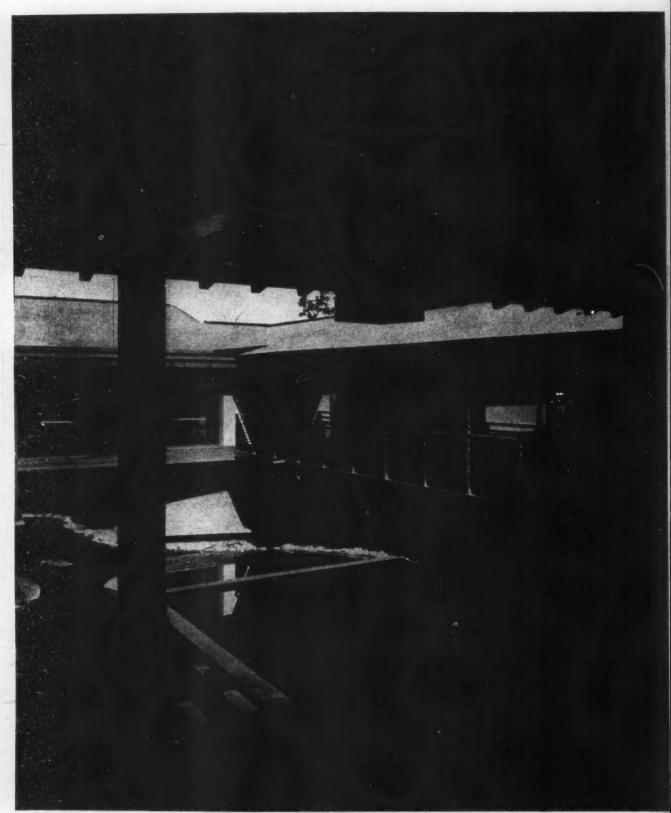
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An indoor-outdoor pool reflects some of wood's many applications in the Motel on the Mountain in Suffern, N. Y. Plank-and-beam walkways, sturdy railing, solid supports bare to every guest the inner charm of this extraordinary wood hostelry. Motel restaurant designed by architect Junzo Yoshimura.

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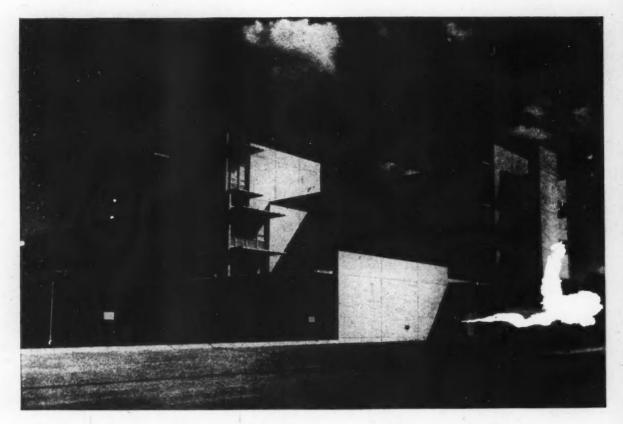




The rugged strength of exposed framing, the durability of planked roofing and board-and-batten siding are used to advantage in this complex of wood structures. Architects: Harwell Hamilton Harris, Perkins and Will.

HOW THE DODGE REPORTER

helped the architect get this efficient hospital built



Architect Dufrechou and his associates have achieved a flexible, smoothly functioning, full-facility hospital — in a distinguished architectural treatment — at low cost for a structure of its size and complexity. Mr. Dufrechou credits this, in large part, to early and close collaboration among all the consulting professionals, and to good communications with contractors and suppliers.

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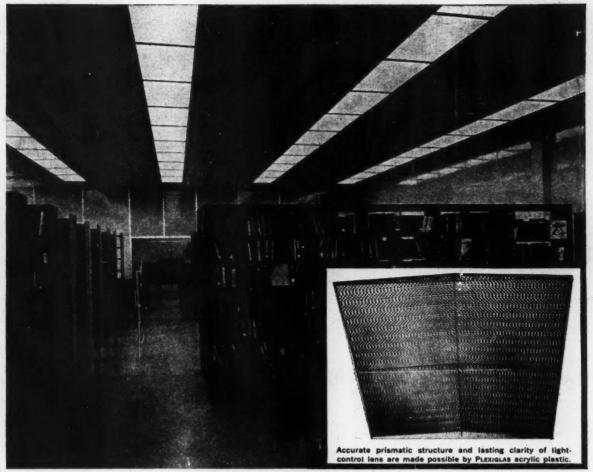
Architect: L. F. Dufrechou

Serving an industrial community, this hospital provides unusually extensive emergency facilities, has a normal capacity of 160 beds. Basic structure is concrete frame, utilizing lightweight concrete columns, and lightweight ribbed floor joists. Exterior walls are aluminum-framed curtain walls with porcelain enamel panels and projected sash. The building is completely airconditioned and rooms are provided with individual controls.



DODGE REPORTS

CONSTRUCTION NEWS SERVICE 119 W. 40th St., New York 18, N. Y.



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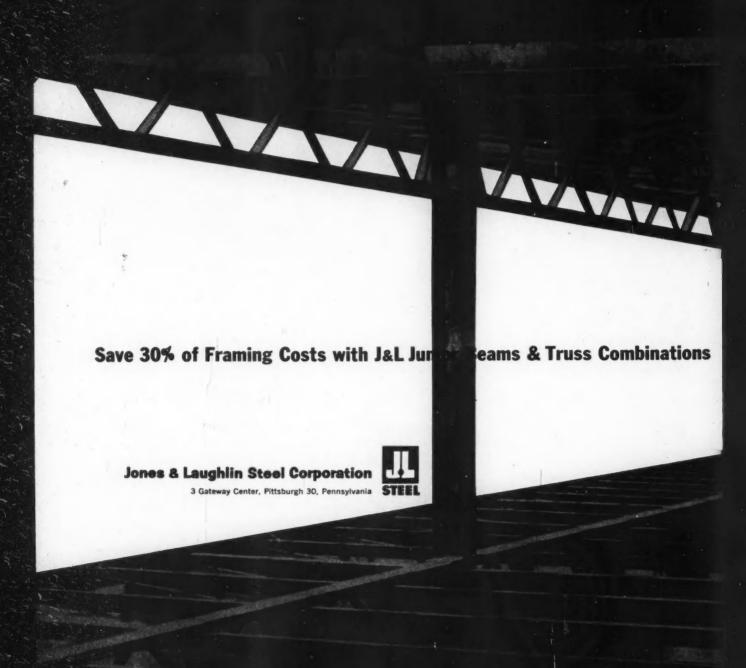
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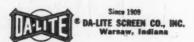


A-V Aware Architects Choose Da-Lite Screens

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Saarinen Memorial

continued from page 232

man's total physical surroundings, outdoors and indoors.

Now, what is the purpose of architecture:

Here again, I would like to stake out the most ambitious claim. I think architecture is much more than its utilitarian meaning-to provide shelter for man's activities on earth. It is certainly all of that, but I believe that it has a much more fundamental role to play for man, almost a religious one. Man is on earth for a very short time and he is not quite sure of what his purpose is. Religion gives him his primary purpose. The performance and beauty and meaningfulness of his surroundings give him confidence and a sense of continuity . . . the question, what is the purpose of architecture? I would answer: to shelter and enhance man's life on earth.

These are the words of this great man, but a man is proved not so much by the words that come from his pen, or even the noble works that come from his hand. His worth is most carefully weighed when he is called to choose between his own high standards and easy accommodation to the press of the world upon him.

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"We have finally to solve this church so that it can become a great building. I feel I have this obligation to the congregation, and as an architect I have that obligation also to my profession and my ideals. I want to solve it so that as an architect when I face St. Peter I am able to say that out of the buildings I did during my lifetime one of the best was this church, because it has in it a real spirit that speaks forth to all Christians as a witness to their faith."

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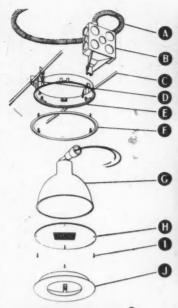
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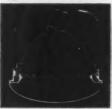
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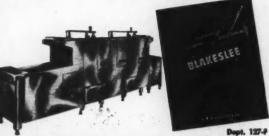
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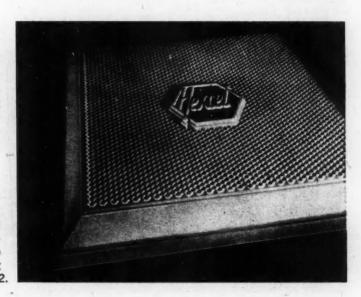
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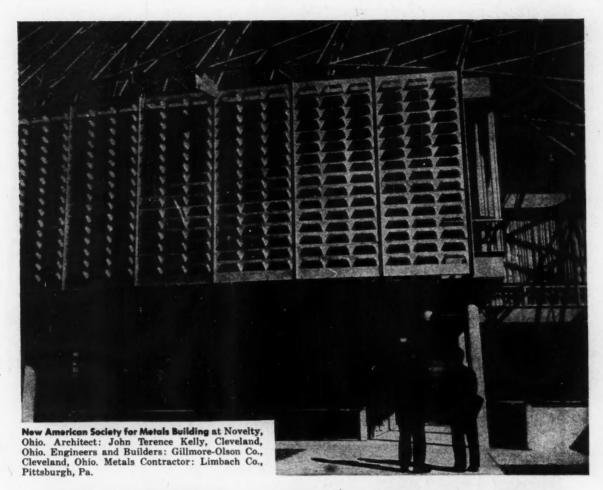
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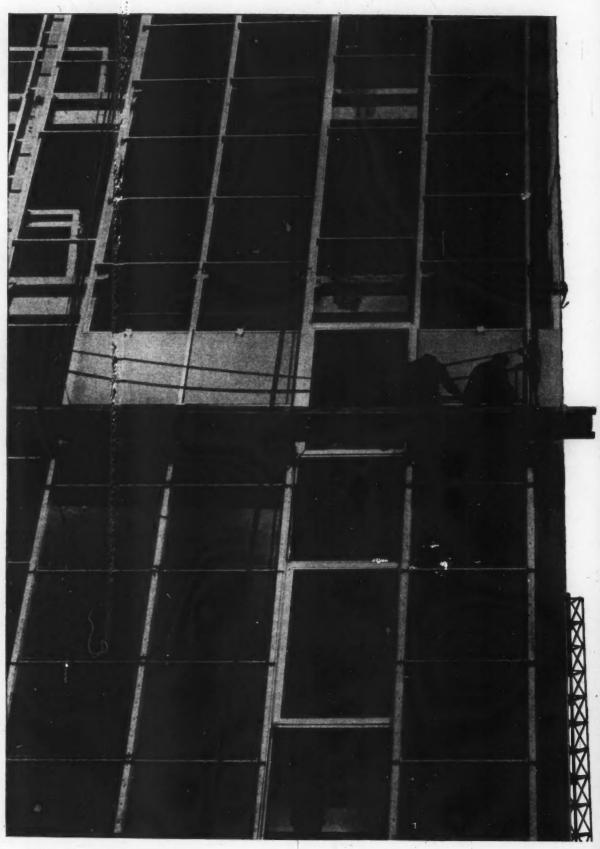
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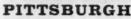
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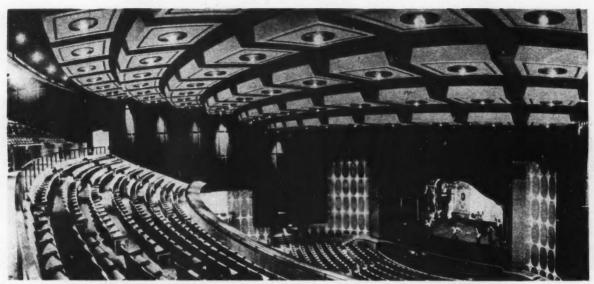
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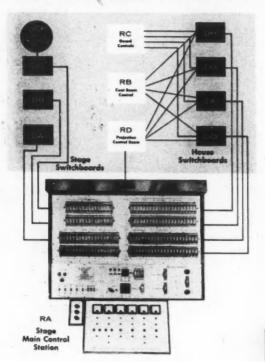


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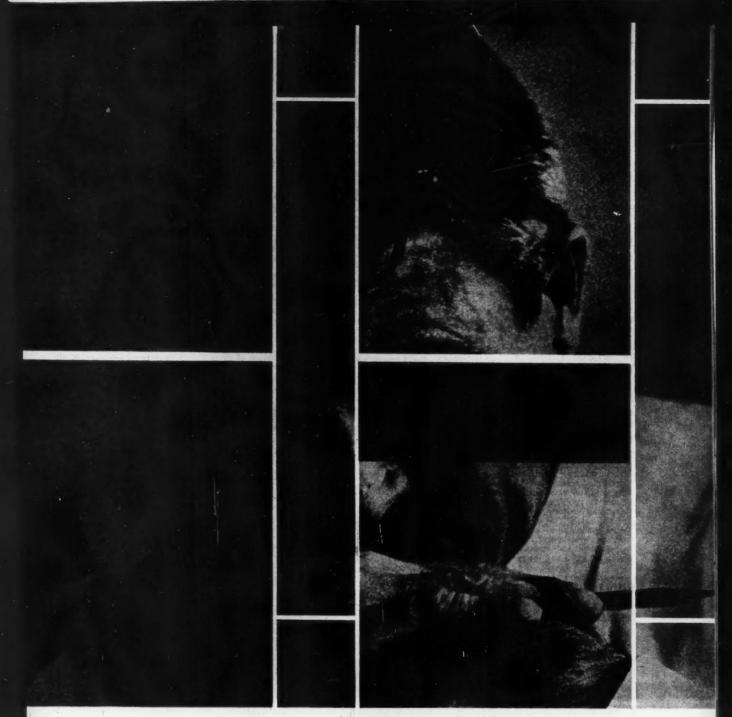
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by Mario Dal Fabbro

Step-by-step instructions for constructing 102 contemporary built-ins. This practical book presents unique sequence plans and illustrations which virtually eliminate the errors and miscalculations which arise in these projects. All pieces can be built from standard grades of wood using common woodwork-

Included are pieces for living rooms, kitchens, bedrooms, play-rooms, attics and cellars. Hundreds of variations and adaptations can be made from these plans, and the book is also an excellent source of data for designing your own built-ins. (1955)

DESIGN OF PRESTRESSED CONCRETE BEAMS

by William H. Connolly

A rational and clear-cut method for the design of pretensioned and post-tensioned concrete members. Through the use of design tables, emphasis is put on the reduction of the tedious trial and error normally involved in design problems. These tables are presented with explicit instructions that make this book uniquely practical. Contains over 90 illustrations of stress diagrams and cross-sections. (1960)

264 pages, 6 x 9, \$11.50

PRACTICAL DESIGN OF STRUCTURAL

by Thomas A. Lucy

This comprehensive manual contains hundreds of time-saving short cuts and methods which are applicable to all conditions and requirements of stress analysis. Developed to meet the special design problems encountered by the structural engineer, this data is readily adaptable to any individual or office procedure. Contains hundreds of useful tables, charts, and diagrams, plus comprehensive analyses and discussions. Over 170 tables and charts. (1957)

432 pages, 64 x 10, \$12.00

TIMBER DESIGN AND CONSTRUCTION HANDBOOK

prepared by Timber Engineering Company

The complete master handbook of timber design and construction written and edited by 34 engineers and timber specialists. Serves two purposes: it is a comprehensive timber design reference, and it is also a practical field handbook. Offers every bit of essential information needed to develop and construct the best wood structures.

The first portion covers the fundamental structural charac-

teristics of wood. Lists types, grades, and ways of preservation. The next ten chapters analyze preliminary design considerations, design details, fabrication and erections. The final chapter presents 129 pages of design and engineering specifications and precise tabular data allowing easy conversion for particular grades and species. (1956)

622 pages, 4 x 9, \$12.75

THE CONTEMPORARY CURTAIN WALL

its design, fabrication and erection

by W. Dudley Hunt, Jr.

One of the most important recent developments in the construction industry, curtain wall construction is still so new that there is a great demand for information on proper methods of design, construction and installation. Meeting that demand, this book presents, for the first time in one place, a wealth of infor-

mation about this construction system.

Analyzes and evaluates the walls, their functions, their component parts, materials and installation. Lists and tables give all the known data about insulation, fire resistance, dimensional stability. Amply illustrated with drawings and photographs.

454 pages, 7 x 9%, \$12.75

BOILERS:

types, characteristics, and functions

by Carl D. Shields

A practical engineering approach to boilers and their selection, application, and performance. Intended to help all those involved in the specification, design, installation, and operation of all types of boilers, this book contains 32 chapters organized within 6 major sections: Boiler Classification, Boiler Design, Steam Generating Equipment, Boiler Construction, Industry Regulation, and Industry Status.

This up-to-date reference covers the experience of the entire industry. It will have specific appeal to stationary engineers, operators, installers, maintenance personnel, and buyers, sellers, and owners of boilers. Over 500 drawings and photographs. (1961)

566 pages, 71/4 x 10, \$15.00

UNFIRED PRESSURE VESSELS

the ASME code simplified

by Robert Chuse

Revised, enlarged, and updated to cover current changes in Section VIII (Unfired Pressure Vessels) and Section IX (Welding Qualifications) of the Code, the new fourth edition of this practical manual presents complex vessel requirements and specifications at a glance. Contains 66 tables, charts, and diagrams designed to give complete, accurate Code calculations in just a matter of minutes. Greatly simplifies the work of designing, building, ordering, repairing and inspecting pressure vessels. (1960)

144 pages, 6 x 9, \$8.75

CENTRIFUGAL PUMPS:

selection, operation and maintenance

by Igor Karassik and the late Roy Carter

A comprehensive reference book for users of centrifugal pumps throughout industry. Component parts, pump drives, performance characteristics, system-head curves, controls, and priming are discussed from the point of view of the buyer and user

are discussed from the point of view of the buyer and user of pumping equipment. Covering the entire field of centrifugal pumps, their appurtenances, and control, this work describes and thoroughly illustrates all types of pumps, including vertical, self-priming, and regenerative; it also discusses pumps for various areas of industrial service. This book will be of everyday use to anyone concerned with moving liquids or gases in bulk. The consulting engineer, specification writer, buyer, layout man, plant designer, operator, maintenance man, salesman or anyone concerned with centrifugal pumps will find this a valuable source-book. (1960) book. (1960)

480 pages, 71/s x 10, \$15.75

PLANT ENGINEERING PRACTICE

by the editors of Plant Engineering

The mammoth new reference work of plant operation and maintenance. Presents 226 separate case studies, each of which is designed to save time, work and money for the plant engineer and his staff, and architects and engineers doing industrial building work.

building work.
Written by over 100 experts in their fields, it is virtually an encyclopedia of practical, hard-earned experience. Organized into 13 sections: Sites and Layout, Construction, Housekeeping and Safety, Materials Handling, Maintenance, Plants and Protective Coatings, Mechanical Power and Piping, Electric Power, Lighting, Utilities, Heating and Air Conditioning, Quality Control, Shop-work. 12-page master index. Over 800 illustrations. (1958)

704 pages, 8¼ x 11%, \$18.50

INDUSTRIAL BUILDING DETAILS

by Duane F. Roycraft

The only master reference of architectural details for the indus-The only master reference of architectural details for the industrial building designer. It presents over 1,500 detail drawings which have been proved in use by architects, draftsmen, and engineers. Each is sharp and clear, drawn precisely to scale, and is large enough to trace or protect for direct use or adaptation.

Every part of the contemporary industrial building is shown -from roofs and parapets to catch basins and manholes. Text is kept to a minimum, appearing only to introduce each of the seventeen major sections. Will save many man hours of tedious searching through files and folders. (1959)

352 pages, 8% x 11%, \$12.75

INDUSTRIAL ARCHITECTURE

by James F. Munce

An up-to-date, comparative survey of industrial building design in Great Britain, Germany, and the United States. Provides a stimulating review of the basic principles and newest developments upon which a factory design must be based.

ments upon which a factory design must be based.
Developments in such areas as design, use of master plan, employee movement, architectural character, and costs are considered. Attention is also given to the development of existing areas, the planning of new parks, and automation and factory design. Most useful of all are the chapters on the structure and fabric of the factory, and on services. These deal with general structural requirements, adequate day-lighting, maintenance, air-conditioning, lighting, sanitation and drainage. This original work will be welcomed by architects, engineers and contractors doing industrial jobs as well as businessman responsible for the planning and construction of new facilities. (1960)

240 pages, 91/e x 121/4, \$14.75

BUILDINGS FOR INDUSTRY

by the editors of Architectural Record

An outstanding selection of new industrial buildings, together with a series of informative studies on trends and factors in present-day industrial building design. 74 projects from all over the United States, as well as a few from overseas, are completely analyzed. Explains choice of site, plan, lighting, colors, loading docks and rail spurs, employee facilities, and many more features. Over 700 illustrations. (1957)

315 pages, 8% x 11%, \$9.75

BUILDINGS FOR RESEARCH

by the editors of Architectural Record

This timely book analyzes in detail a wide variety of research facilities—44 separate projects—built by industry, government agencies, and universities. Over 500 illustrations. (1958)

232 pages, 8% x 11%, \$9.50

ELECTRICAL EFFICIENCY IN INDUSTRIAL PLANTS

by E. S. Lincoln

A practical engineering guide to lower power costs. Designed to eliminate power waste and its resultant drain on industrial productivity. The author shows in detail the practical methods of making surveys of power load, voltage, and electrical protection—complete with a discussion of the necessary instruments and

An analysis of power costs is included as well as all the elements in the distribution system. Such troublesome matters as power factor, choice of voltage, and equipment maintenance are presented directly and simply. Supplemented by helpful illustrations and tables. (1960)

235 pages, 6 x 9, \$9.50

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the shaping of man's natural environment

by John O. Simonds

An articulate plea for intelligent landscape planning by a landscape architect who has drawn upon his years of study and
world-wide travel, his practice, and his capacity for direct, clear
statement. It explains what sensitive and sensible landscape
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of Spaces, Visual Aspects of Plan Arrangement, Circulation,
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The only comprehensive reference work of grounds develop-ment and maintenance. Contains all the detailel information you need to plan, supervise and maintain grounds of every type

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Here is the book which helps the user recognize his landscaping needs, plan them on paper, substitute pencil work for shovel work, and eventually provide useful, beautiful outdoor space to the limits of his lot. Especially valuable to the new home buyer or builder, who cannot afford the services of a landscape architect, and cannot afford to make costly mistakes in his basic

Covers in detail such topics as: Recognizing your needs, Plans, Scheduling work and money, Screenings, Walls, Drainage, Soil conditions, Solar orientation, Weather considerations, and many more. Profusely illustrated. (1956)

278 pages, 6% x 94, \$5.95

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268 pages, 8 x 10½, \$10.00

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A stimulating collection of reports and opinions on the hospital scene by the editorial director of *The Modern Hospital*. Keenly aware of what is wrong, and right, with hospitals, the author examines problems which are closely allied to the medical field: the high cost of medical care, labor problems, the emotionally tangled issues of socialized medicine, and the ethics of professional practice. On the lighter side, he includes anecdotes and stories on the memorable characters and events he has encountered in his years of reporting medical and hospital affairs. Anyone interested in the complexities and lighter moments of the medical field will find this book both informative and amusing. (1961) ing. (1961)

288 pages, 5% x 7½, \$6.95

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256 pages, 8¼ x 11%, \$9.75

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by Warwick Smith

This unique guide explains how the intended functions of a surgical suite affect its organization and design, and describes the methods of translating these needs into actual facilities. It prepares the way for a complete analysis of the function and lesign of the surgical suite; and considers the size, plan, and location of the clean and sterile supplies; sterilization; the detailed arrangement of the rooms, with particular emphasis on the major and specialty operating rooms and the recovery room; materials and finishes; heating, ventilating, and air conditioning; and engineering services. Contains numerous drawings and an exhaustive checklist keyed point-by-point to specific discussions in the text. (1960) in the text. (1960)

480 pages, 6 x 9, \$12.75

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by Geneva Mathiasen and Edward H. Noakes

The first comprehensive planning guide on the problems of designing and building homes for the aged and infirm. The editors—an expert in the problems of aging and a noted institutional architect—provide written and graphic assistance in the physical planning of such homes. Included are chapters prepared by eleven specialists on such topics as site planning, the residence unit, health needs and the infirmary, construction materials and costs, design and the function of the architect. (1959)

119 pages, 8¼ x 11½, \$12.75

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by R. C. Williams, M.D. and others

The unique, complete handbook on the operation, organization, and management of nursing homes and similar institutions. Written by five authorities in the fields of public health, medicine, nursing care and administration, this book answers the unusual and the everyday problems of nursing home operation. It shows how to provide the best possible service while maintaining sound, economical business policy.

Eight chapters include establishment and organization, business management, medical and nursing care, recreational facilities, food service, housekeeping, buildings and grounds, and safety. Well illustrated with photographs, checklists, and informative appendices. (1959)

appendices. (1959)

224 pages, 6 x 9, \$8.50



SCHOOLS FOR THE NEW NEEDS

by the editors of Architectural Record

A graphic presentation of 66 school buildings from all parts of the country, which best demonstrate today's sweeping advances the country, which best demonstrate today's sweeping advances in concept and design. The result of today's pressing need for economy, all of these schools are working proof that sound planning can pay off in better school buildings at lower cost. Divided into 3 extensive sections: Cost Studies, Elementary Schools, Secondary Schools, Each section contains about 20 case studies, profusely illustrated with photos, plans, charts, and diagrams—over 900 in all. (1956)

312 pages, 8% x 11%, \$9.75

SCHOOLS FOR THE VERY YOUNG

by Heinrich H. Waechter and Elisabeth Waechter Beginning with a brief discussion of the development of child education, the book goes on to relate the daily pre-school ac-tivities to the environmental needs of the child and the teacher. Essentially a practical manual which concerns itself with design, layout, orientation of rooms, lighting, heating, ventilation, and other important considerations. 110 photographs, plans, and drawings included. (1951)

197 pages, 7 x 10, \$6.50

TOWARD BETTER SCHOOL DESIGN

by William W. Caudill

A common-sense approach to designing school buildings of all types, from elementary grades through college. It penetrates the maze of superficiality involved in school planning, gets to the heart of the matter in a lucid, thought-provoking manner. Contains 91 case studies of schools where adherence to an approach based on the specific problems involved has resulted in better schools which give the taxpayer the most for his money. (1954) 271 pages, 8¼ x 11%, \$12.75

SCHOOL PLANNING AND BUILDING **HANDBOOK**

by N. L. Engelhardt, N. L. Engelhardt, Jr. and Stanton Legett

The only practical handbook dealing with every phase of planning and executing the school building program. Specifically, this book will 1. Analyze, define, and assign the exact duties and responsibilities of every party involved; 2. Set up detailed checklists and procedures for every aspect and step of your program; 3. Provide complete checklists and specimens of contracts; 4. Give specific advice about law, accounting, plans, inspection, and other specific problems. (1956)

626 pages, 6 x 9, \$12.75

FIELD INSPECTION OF BUILDING CONSTRUCTION

by Thomas H. McKaig, B. Arch., C.E.

A guide to the supervision of construction for architects, engineers, and field inspectors which charts a clear path through the maze of owner-architect-contractor-subcontractor relations and responsibilities. Defines responsibilities for such matters as quality of materials and workmanship, coordination of work by dif-ferent trades, safety precautions, safeguarding of work in place, and many more.

Outlines the pitfalls the inspector should avoid, and gives him guidance in safeguarding the owner's interest against a variety of contingencies, without exposing him to charges and possible claims for interference or delay. (1958)

337 pages, 6 x 9, \$9.35

PRACTICAL HOUSES FOR CONTEMPORARY LIVING

by Jean and Don Graf

Here are 40 houses whose owners had the foresight to follow the three cardinal rules of home planning: Know what you want-Know what you need-Know what you can afford. Price-wise, the houses range from \$7500 upward, proving that a limited budget is no bar to good design. They represent a cross-section of styles including Colonial, Georgian, the popular ranch-type, and the outright "modern." Each is displayed with four or more pages of photographs, floor plans, and brief text which points up useful ideas on design, decor, and landscaping. (1953)

174 pages, 8¼ x 11¼, \$6.95

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A practical office manual containing simple, standardized pro-cedures for solving structural design problems. This unique handbook had its inception as a series of notes used by the au-thor in his instruction of architects and engineers preparing for state licensing examinations. Strictly a practical work, with no

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442 pages, 71/s x 10, \$12.50

ARCHITECTURAL ENGINEERING

by the editors of Architectural Record

100 case studies which present the latest developments in architectural engineering. Each study is a detailed source of specific information for which there is current professional demand. Each is graphically complete with plans, diagrams, illustrations

and photographs—over 1,400 in all.

The book is composed of six sections: The Building Shell, Environmental Control, Utilities, Site Planning, Materials, Special Problems. Contains simplified cost cutting methods, new uses for old and new materials, new structural systems and new me-chanical and eleltrical equipment. (1955)

494 pages, 8% x 11%, \$12.75

A TREASURY OF CONTEMPORARY HOUSES

by the editors of Architectural Record

50 architect-designed contemporary houses, selected from plans of thousands of new homes. The houses within these pages are the experts' choice, designed by some of the world's leading architects, the ultimate in house perfection. There is nothing sketchy about this book. Most of the houses are depicted in 10 or more photographs, illustrations and plans. Over 600 superb illustrations accompany a pertinent, lucid text by the elitors of the world's leading architectural magazine. The story behind each house is presented simply in its essentials with no frills or involved technical language. (1954)

215 pages, 8% x 11%, \$6.95

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by the editors of Architectural Record

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to serve the living needs and aspirations of families with widely varying budgets.

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as architect, engineer, and builder. Contains much valuable information on the properties of "Ferro-cemento", which is a type of reinforced concrete developed by the author and used by him in the construction of some of the largest and most beautiful thin-shell concrete structures in the world. Alternately practical and philosophical, the book considers such varied subjects as architect-client relations, training of designers and builders, theory of structures, and building in reinforced loncrete. Contains photographs of all of Nervi's major works, as well as numerous sketches and plans. (1956)

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208 pages, 7 x 94, \$8.50

SUN AND SHADOW

by Marcel Breuer

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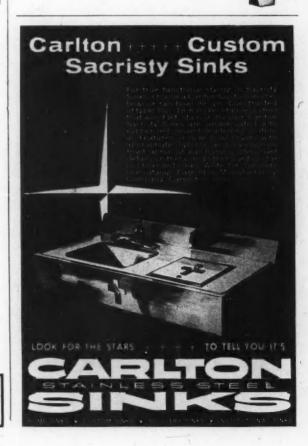
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SEMI-ANNUAL INDEX VOLUME 130 JULY-DEC, 1961

ABBREVIATIONS: BTS—Building Types Study; AE—Architectural Engineering; TSS—Time-Saver Standards; BC—Building Components.

Abell, Thornton M., archt.; Augustus C.P. Bakos House, Los Angeles—July 1961, pp.

Bakos House, Los Angeles—July 1961, pp. 159-162

Acoustics. Technical Roundup: "Vibration Isolation System Shuts Out Bowling Alley Noise"—Oct. 1961, AE, p. 182

Air Conditioning. "Air Conditioning for Schools," by William B. Foxhall—July 1961, AE, pp. 183-194. "The Impact of Air Conditioning on School Planning," by Henry Wright—July 1961, BTS, pp. 168, 170. "Integrating Mechanical Systems: A Design Approach," by Gershon Meckler—Dec. 1961, AE, pp. 148-151. "New Techniques Integrate Lighting, Air Conditioning," Water and Power Building, Los Angeles; Albert C. Martin and Assocs., archts.—Aug. 1961, AE, pp. 142-144

Airports. See Transportation Buildings. Allen, Rex Whitaker, archt.; Roseville District Hospital, Roseville, Cal.—Dec. 1961, BTS, pp. 134-135. With John Carl Warnecke, assoc. archt.; French Hospital, San Francisco—Dec. 1961, BTS, pp. 186-137

Amaryllis Park Primary School, Sarasota, Fla.; Mark Hampton, archt.—Oct. 1961, BTS, pp. 172-174

American Airlines Terminal, Idlewild, New York International Airport; Kahn and Jacobs, archts.—Sept. 1961, pp. 170-171

Anshen & Allen, archts.; Richard M. Doty House, San Francisco—Dec. 1961, pp. 123-126

Apartments. Queen Emma Development,

House, San Francisco—Dec. 1961, pp. 123-126

Apartments. Queen Emma Development, Honolulu; Minoru Yamasaki and Assocs., archis.—July 1961, pp. 132-135

Architectural Engineering. "Air Conditioning for Schools," by William B. Foxhall-July 1961, pp. 183-194. "Hammock-Type Roof for Dulles Airport"—Nov. 1961, p. 198. "High-Rise Structures in Hawaii Combine Precast, Poured Concrete," by Alfred A. Yee—Oct. 1961, pp. 176-181. "Integrating Mechanical Systems: A Design Approach," by Gershon Meckler—Dec. 1961, pp. 145-151. "Model Tests Predict Space Frame Behavior," by Kenneth C. Naslund—Dec. 1961, pp. 152-154. "New Techniques Integrate Lighting, Air Conditioning"; Water and Power Building, Los Angeles; Albert C. Martin and Assocs., archts.—Aug. 1961, pp. 142-144. "Quartz Lamps Heat and Light a Gymnasium"—Nov. 1961, p. 198. "Shaded Walls Proposed to Cut Solar Heat"—Aug. 1961, pp. 145-147. "Space Structures in Steel," by Robert E. Rapp—Nov. 1961, pp. 190-194. "Two Details Cut Mechanical and Electrical Costs in Gyms"—Nov. 1961, p. 197. Technical Roundup: "Vibration Isolation System Shuts Out Bowling Alley Noise"—Oct. 1961, p. 182

Architectural Practice. "Balancing the Work

tem Shuts Out Bowling Alley Noise"—Oct. 1961, p. 182
Architectural Practice. "Balancing the Work Load for Architectural and Engineering Draftsmen," by Clinton Gamble—Nov. 1961, News, p. 10. Organization for Efficient Practice, Part 6; Victor Gruen Assocs.—Oct. 1961, pp. 133-138
Articles. "Recent British Church Design: An Agreement to be Radical," by Peter Hammond—Dec. 1961, pp. 115-122
Ashley, Fletcher, archt.; Architect's House, Ogunquit, Maine—Nov. 1961, pp. 159-161
Auditorium, The, Pittsburgh; Mitchell & Ritchey, archts.—Nov. 1961, pp. 165-168

Awards. "Winners Announced in Third Annual Mastic Tile Competition"—Sept. 1961, News, pp. 12-13

B

Banks. Building Types Study 297: Office Buildings and Banks—Aug. 1961, pp. 119-140. Central National Motor Bank, Oklahoma City; Wright & Selby, archts.—Aug. 1961, p. 123. Bank, Century 21 Exposition, Seattle, Wash.; Paul Thiry, archt.—Aug. 1961, p. 105. Drexel National Bank, Lakemeadows Shopping Center, Chicago; Skidmore, Owings & Merrill, archts.—Oct. 1961, pp. 144-146. Kahili Branch, First National Bank of Hawaii, Honolulu; Vladimir Ossipoff & Assocs., archts.—Aug. 1961, BTS, pp. 134-135. Manufacturers' National Bank, Bloomfield Township, Mich.; Louis G. Redstone, archt.; Avner Naggar, assoc. archt.—Aug. 1961, BTS, p. 132. Medical Center National Bank, Houston; John A. Greeson-Brown & McKim, archts.—Aug. 1961, BTS, pp. 132. Medical Center National Bank, Houston; John A. Greeson-Brown & McKim, archts.—Aug. 1961, BTS, pp. 130-131. South 3rd St. Branch, Merchants National Bank, Terre Haute, Ind.; Evans Woolen III and Yeager Archts., assoc. archts.—Aug. 1961, BTS, pp. 133. Union Bank, Beverly Hills, Cal.; Sidney Eisenshtat, archt.—Oct. 1961, pp. 142-143
Barnes, Edward Larrabee, archt.; Current Work U.S. Consulate, Tabriz, Iran: Haystack Mountain School of Arts and Crafts, Deer Island, Me.; Dormitories, St. Paul's School, Concord, N.H.; Helen Newberry Joy Residence for Women, Wayne State University, Detroit; Neiman-Marcus Shopping Center, Fort Worth, Texas—Oct. 1961, pp. 121-132. "Edward Larrabee Barnes Interviewed by Architectural Student Jonathan Barnett"—Aug. 1961, News, pp. 10, 194
Bassetti & Morse, and Kirk, Wallace, McKinley & Assocs., and B. Marcus Priteca & James Chiarelli, archts.; Seattle Center, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 100
Belluschi, Pietro, and Carl Koch & Assocs. assoc. archts.; Park Avenue Congregational Church, Arlington, Mass.—Nov. 1961, pp. 143-148
Boy Scouts of America, Service Center, Chief Seattle Council, Seattle, Wash.; Ibsen A. Nelsen and Russell B. Sabin. archts.

1961, pp. 143-148

Boy Scouts of America, Service Center, Chief Seattle Council, Seattle, Wash.; Ibsen A. Nelsen and Russell B. Sabin, archts.—August 1961, BTS, pp. 138-140

Breuer, Marcel, archt.; St. John's Abbey, Minnesota—Nov. 1961, pp. 131-142. With Herbert Beckhard, assoc. archt.; John McMullen House, Mantoloking, N.J.—Nov. 1961, pp. 150-152

Bruce & Parrish, archts.; Oak Grove Jr. High School, Pinellas County, Fla.—July 1961, AE, p. 194

Brune, Walter, archt.; House, Alsace, France—Sept. 1961, pp. 127-130

Buenos Aires Intercontinental Hotel, Buenos

Buenos Aires Intercontinental Hotel, Buenos Aires, Argentina; William B. Tabler, archt.—Sept. 1961, BTS, pp. 133-134 Buick Division of General Motors, Regional Office Building, Burlingame, Cal.; Hertzka & Knowles, archts.—Aug. 1961, BTS, p.

126
Building Components. "A Lexicon for Plastics in Building," Part I, by William Demarest—Oct. 1961, pp. 189-192; Part II—Nov. 1961, pp. 208-204. "A Review of Gypsum Wallboard Systems," by Howard P. Vermilya—Aug. 1961, pp. 155-156. "Shielded Rooms for Electronic Equipment," by C. C. Borden—Sept. 1961, pp.

195-196. "Sound Systems," by Robert B. Newman and William J. Cavanaugh—Dec. 1961, pp. 161-162. "Thin Terrazzo Top-pinga," by Ray E. Cumrine—July 1961, pp.

201-202
Burket, Rhees, archt.; Randolph Jr. High
School and Parkland Jr. High School,
Montgomery County, Md.—July 1961,
BTS, p. 177
Butler University, Library, Indianapolis;
Minoru Yamasaki and Assocs., archts.—
July 1961, pp. 136-137

California, State Bar of, Office Building, San Francisco; Hertaka & Knowles, archts.— Aug. 1961, BTS, p. 127
Campbell & Wong, Worley K. Wong, archt.; Galleon Restaurant, Pacific Marina, Alameda, Cal.—July 1961, pp. 151-153
Campbell & Wong & Assocs., archts.; John Carden Campbell House, Mokelume Hill, Cal.—Nov. 1961, pp. 158-155
Cannon, Thiele, Betz & Cannon, archts.; Highland Hospital, Beacon, N.Y.—Dec. 1961, BTS, pp. 138-140
Carlton Beach Hotel, Southampton, Bermuda; William B. Tabler, archt.—Sept. 1961, BTS, p. 135
Central High School, Phoenix, Ariz.; John Sing Tang and Assocs., archts.—July 1961, BTS, p. 178
Central National Motor Bank, Oklahoma City; Wright & Selby, archts.—Aug. 1961, BTS, p. 123
Century 21 Exposition, Seattle, Wash.; Paul Thiry, archt.—Aug. 1961, pp. 96-106
Charterhouse Motor Hotel, Anaheim, Cal.; Victor Gruen Assocs., archts.—Sept. 1961, BTS, pp. 144-145
Charterhouse Motor Hotel, Lynn, Mass.; Curtis and Davis, archts.—Sept. 1961,

BTS, pp. 144-145
Charterhouse Motor Hotel, Lynn, Mass.;
Curtis and Davis, archts.—Sept. 1961,
BTS, pp. 140-141
Chase Manhattan Bank Building, New York
City; Skidmore, Owings & Merrill, archts.
—July 1961, pp. 141-150
Christian Witness Child-Care Center, Century 21 Exposition, Seattle, Wash.; Durham, Anderson & Freed, archts.—Aug.
1961, p. 105

ham, Anderson & Freed, archts.—Aug. 1961, p. 105
Churches. See Religious Buildings.
Churchill, Chester L., archt.; Eastern Air
Lines Terminal, Idlewild, New York International Airport—Sept. 1961, pp. 175-177
Ciampi, Mario J., archt.; Paul W. Reiter, assoc. archt.; Vista Grande Primary School, Daly City, Cal.—Oct. 1961, BTS, pp. 162-163

assoc. archt.; Vista Grande Primary School, Daly City, Cal.—Oct. 1961, BTS, pp. 162-163
Coliseum 21 Exhibition Hall, Century 21 Exposition, Seattle, Wash.; Paul Thiry, archt.—Aug. 1961, pp. 98-99
College Buildings. Library, Butler University, Indianapolis; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 136-137.
Behavioral Sciences Building, Harvard University, Cambridge, Mass.; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 126-127. Engineering Laboratory, Harvard University, Cambridge, Mass.; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 128-129. Master plan, University of Illinois, Chicago; Skidmore, Owings & Merrill, archts.—Oct. 1961, News, pp. 12-13. University Library, and Student Dormitory, St. John's Abbey, Minn.; Marcel Breuer, archt.—Nov. 1961, pp. 134-135. Dormitories, St. Paul's School, Concord, N.H.; Edward Larrabee Barnes, archt.—Oct. 1961, pp. 128-129. Helen Newberry Joy Residence for Women, Wayne State University, Detroit; Edward Larrabee Barnes, archt.—Oct. 1961, pp. 130-131

Concrete, Precast. "High-Rise Structures in Hawaii Combine Precast, Poured Con-Combine Precast, Poured Con-by Alfred A. Yee-Oct. 1961, AE, crete,

crete, by Airred A. 1ee—Oct. 1961, AE, pp. 176-181
Connecticut Spring Corp., Plant, Farmington Industrial Park, Farmington, Conn.; Walter F. Greene Jr., archt.—Nov. 1961, BTS, pp. 180-181

BTS, pp. 180-181 Curtis and Davis, archts.; Charterhouse Mo urtis and Davis, archts; Charterhouse Motor Hotel, Lynn, Mass.—Sept. 1961, BTS, pp. 140-141. Hotel, British West Indies—Sept. 1961, BTS, pp. 142-143. Riverbank Elementary School, Stamford, Conn.—Oct. 1961, BTS, pp. 168-169

Daniel, Mann, Johnson & Mendenhall, Victor Gruen Assocs., assoc. archts.; Tishman 615 Building, Los Angeles—Oct. 1961, pp. 139-141

Darien High School, Darien, Conn.; Ketchum and Sharp, archts.—Oct. 1961, BTS, pp.

Del Gaudio, Matthew, and William Lescaze, archts.; City and Muncipal Courts Build-ing, New York City—Aug. 1961, pp. 107-110

Design Associates, archts.; Frank Slavsky House, Honolulu—Aug. 1961, pp. 115-118
Dorman, Richard L., & Assocs., archts.; Ivory Tower Restaurant and Art Gallery, Santa Monica, Cal.—July 1961, pp. 154-155
Downstate Medical Center, Brooklyn, N.Y.; Urbahn, Brayton and Burrows, archts.—Dec. 1961, BTS, pp. 144-146
Drexel National Bank, Lakemeadows Shopping Center, Chicago; Skidmore, Owings & Merrill, archts.—Oct. 1961, pp. 144-146
Durham. Anderson & Freed, archts.; Christian Witness Child-Care Center, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 105

Eastern Air Lines Terminal, Idlewild, New Eastern Air Lines Terminal, Idlewild, New York International Airport; Chester L. Churchill, archt.—Sept. 1961, pp. 175-177 Eisenshtat, Sidney, archt.; Union Bank, Beverly Hills, Cal.—Oct. 1961, pp. 142-143 El Camino Hospital, Mountain View, Cal.; Stone, Marraccini & Patterson, archts.—Dec. 1961, BTS, pp. 128-133 Electrical Systems. "Two Details Cut Mechanical and Electrical Costs in Gyms"—Nov 1961, AE, p. 197

chanical and Electrical Costs in Gyms"— Nov. 1961, AE, p. 197 Electronic Shielding. "Shielded Rooms for Electronic Equipment," by C. C. Borden— Sept. 1961, BC, pp. 195-196 El Ponce Intercontinental House, Ponce, Puerto Ricc; William B. Tabler, archt.— Sept. 1961, BTS, p. 138 Engineering. See Architectural Engineer-

Epstein, A., and Sons, Inc., archts.; Simmons Co. Plant, Munster, Ind.—Nov. 1961, BTS, pp. 186-188

and Expositions. See Recreation Fairs

Buildings.

Falk and Booth, archts.; Origin L. Mowry School, Irvington, Cal.—July 1961, BTS.

p. 180
Federal Science Pavilion, Century 21 Exposition, Seattle, Wash.; Minoru Yamasaki, and Naramore, Bain, Brady & Johanson, archts.—Aug. 1961, p. 100
First National Bank of Hawaii, Kahlii Branch, Honolulu; Vladimir Ossipoff & Assocs., archts.—Aug. 1961, BTS, pp. 134-

135

Assocs., archts.—Aug. 1301, B1S, pp. 104135
Flint School District Administration Building. Flint, Mich.; Linn Smith Assocs.,
archts.—Aug. 1961, BTS, p. 136
Floor Framing. Floor Framing Systems
Parts 1, 2. by John Mascioni—Dec. 1961,
TSS, pp. 155-156
Flooring. "Thin Terrazzo Toppings." by Ray
E. Cumrine—July 1961, BC, pp. 201-202
Forest Products Industry Pavillion. Century
21 Exposition, Seattle. Wash.; Robert B.
Price, archt.—Aug. 1961, p. 105
Fort Stockton High School, Fort Stockton,
Texas: Groos, Clift & Ball, archts.—July
1961, BTS, p. 174
French Hospital. San Francisco; Rex Whitaker Allen and John Carl Warnecke, assoc.
archts.—Dec. 1961, BTS, pp. 136-137

G

Galleon Restaurant, Pacific Marina, Alameda, Cal.; Campbell & Wong, Worley K. Wong, archt.—July 1961, pp. 151-153
Gamble, Clinton, "Balancing the Work Load for Architectural and Engineering Draftsmen"—Nov. 1961, News, p. 10
General Motors, Buick Division, Regional Office Building, Burlingame, Cal.; Hertzka & Knowles, archts.—Aug. 1961, BTS, p. 126 126

126
Golemon & Rolfe, archts.; South Park High
School, Beaumont, Texas—July 1961,
BTS, p. 173
Gores, Harold B., "The Case for Controlled
Environment"—July 1961, BTS, p. 163
Government Buildings. See Public Build-

ings.
Graham, John, & Co., archts.; "Space Needle," Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 104
Green Shield Office Building, Boulder, Colo.; Hobart D. Wagener, archt.—Aug. 1961, BTS, pp. 124-125
Greene, Walter F., Jr., archt.; Connecticut Spring Corp., Farmington Industrial Park, Farmington, Conn.—Nov. 1961, BTS, pp. 180-181

Spring Corp., Farmington, Conn.—Nov. 1961, BTS, pp. 180-181 reeson, John A.-Brown & McKim, archts.; Medical Center National Bank, Houston—Aug. 1961, BTS, pp. 130-131 roos, Clift & Ball, archts.; Fort Stockton High School, Fort Stockton, Texas—July 1961, BTS, pp. 174

1961, BTS, p. 174
ruen, Victor, Assocs., archts.; Charterhouse Motor Hotel, Anaheim, Cal.—Sept.
1961, BTS, pp. 144-145. Plant, Rose Marie
Reid, Inc., Van Nuys, Cal.—Nov. 1961,
BTS, pp. 182-183. With Daniel, Mann,
Johnson & Mendenhall, assoc. archts.;
Tishman 615 Building, Los Angeles—Oct.
1961, pp. 139-141. Organization for Efficient Practice, Part 6—Oct. 1961, pp. 133138 Gruen. 138

Wallboard "A Review of Gypsum Wallboard Systems," by Howard P. Ver-milya-Aug. 1961, BC, pp. 155-156

Hammond, Peter, "Recent British Church Design: An Agreement to be Radical"—

Design: An Agreement to be Radical"—
Dec. 1961, pp. 115-122
Hampton, Mark, archt.; Amaryllis Park
Primary School, Sarasota, Fla.—Oct.
1961, BTS, pp. 172-174
Hartford Building, Chicago; Skidmore, Owings & Merrill, archts.—Sept. 1961, pp.
121-126

ings & Merrill, archts.—Sept. 1961, pp.
121-126
Hartstern, Louis & Henry, archts.; Westport Road High School, Jefferson County, Ky.—July 1961, BTS; p. 182
Harvard University, Behavioral Sciences Building, Cambridge, Mass.; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 126-127. Engineering Laboratory, Cambridge, Mass.; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 128-129
Haystack Mountain School of Arts and Crafts, Deer Isle, Me.; Edward Larrabee Barnes, archt.—Oct. 1961, pp. 126-127
Heating, "Quartz Lamps Heat and Light a Gymnasium"—Nov. 1961, AE, p. 198
Hertzka & Knowles, archts.; Regional Office Building, Buick Division of General Motors, Burlingame, Cal.—Aug. 1961, BTS, p. 126. State Bar of California Office Building, San Francisco—Aug. 1961, BTS, p. 127
Highland Hospital, Beacon, N.Y.; Cannon, Thiele, Betz & Cannon, archts.—Dec. 1961, BTS. p. 123. 140

Highland Hospital, Beacon, N.Y.; Cannon, Thiele, Betz & Cannon, archts.—Dec. 1961, BTS, pp. 138-140
Hof's Hut Restaurant, Long Beach, Cal.; Killingsworth, Brady & Smith, archts.—July 1961, pp. 156-157
Holland Mortgage & Investment Corp. Offices, Houston; Neuhaus and Taylor, archts.—Aug. 1961, BTS, pp. 120-122
Holland Sr. High School, Holland, Mich.; Suren Pilafian, archt.—July 1961, BTS, p. 179

179

Homewood-Flossmoor High School, Flossmoor, Ill.; Perkins & Will, archts.—July 1961, BTS, p. 175

Hospitals. Building Types Study 301—Dec. 1961, pp. 127-146. El Camino Hospital, Mountain View, Cal.; Stone, Marraccini & Patterson, archts.—Dec. 1961, BTS, pp. 128-133. Downstate Medical Center, Brooklyn, N.Y.; Urbahn, Brayton and

Burrows, archts.—Dec. 1961, BTS, pp. 144-146. French Hospital, San Francisco; Rex Whitaker Allen and John Carl War-

144-146. French Hospital, San Francisco; Rex Whitaker Allen and John Carl Warnecke, assoc. archts.—Dec. 1961, BTS, pp. 136-137. Highland Hospital, Beacon, N.Y.; Cannon, Thiele, Betz & Cannon, archts.—Dec. 1961, BTS, pp. 138-140. Roseville District Hospital, Roseville, Cal.; Rex Whitaker Allen, archt.—Dec. 1961, BTS, pp. 134-135. St. Frances Xavier Cabrini Hospital, Melbourne, Australia; Stephenson & Turner, archts.—Dec. 1961, BTS, pp. 141-143 Hotels. Building Types Study 298—Sept. 1961, pp. 131-150. Buenos Aires Intercontinental Hotel, Buenos Aires, Argentina; William B. Tabler, archt.—Sept. 1961, BTS, pp. 133-134. Carlton Beach Hotel, Southampton, Bermuda; William B. Tabler, archt.—Sept. 1961, BTS, pp. 135. El Ponce Intercontinental Hotel, Ponce, Puerto Rico; William B. Tabler, archt.—Sept. 1961, BTS, pp. 136-137. Hotel Korachi, Pakistan; William B. Tabler, archt.—Sept. 1961, BTS, pp. 146-147. Karachi, Intercontinental Hotel, Karachi, Pakistan; William B. Tabler, archt.—Sept. 1961, BTS, pp. 146-147. Karachi, Pakistan; William B. Tabler, archt.—Sept. 1961, BTS, pp. 148-150. Hotel, British West Indies; Curtis and Davis, archts.—Sept. 1961, BTS, pp. 148-143. Houses. Augustus C. P. Bakos House, Los

and Davis, archis.—Sept. 1961, BTS, pp. 142-143

Houses. Augustus C. P. Bakos House, Los-Angeles; Thornton M. Abell, archt.—July 1961, pp. 159-162. Richard M. Doty House, San Francisco; Anshen & Allen, archts.—Dec. 1961, pp. 123-126. Architect's House, Ogunquit, Me.; Fletcher Ashley, archt.—Nov. 1961, pp. 159-161. John McMullen House, Mantoloking, N.J.; Marcel Breuer, archt.; Herbert Beckhard, assoc. archt.—Nov. 1961, pp. 150-152. House, Alsace, France; Walter Brune, archt.—Sept. 1961, pp. 127-130. John Carden Campbell & Wong & Assocs., archts.—Nov. 1961, pp. 153-155. Frank Slavsky House, Honolulu; Design Assocs. archts.—Nov. 1961, pp. 155-118. Robert E. Bloom House, North Muskegon, Mich.; George Fred Keck-William Keck, archts.—Nov. 1961, pp. 156-158. W. Coy Filmer House, Downieville, Sierra County, Cal.; Francis Joseph McCarthy, archt.—Nov. 1961, pp. 162-164. Ira Bernstein House, Princeton, N.J.; Frank Schlesinger, archt.—Oct. 1961, pp. 151-154. Burton Cohen House, North Miami, Fla.; Kenneth Treister, archt.; Howard Ahern, assoc. archt.—Oct. 1961, pp. 157-150. Proposed vacation house, Aspen, Colo.; Harry Weese, archt.—Oct. 1961, News, pp. 14-15
Hung Roofs. "Hammock-Type Roof for Dulles Airport"—Nov. 1961, AE, p. 198

Idlewild, New York International Airport—
Sept. 1961, pp. 151-190
Illinois, University of, Master plan, Chicago; Skidmore, Owings & Merrill, archts.—Oct. 1961, News, pp. 12-13
Image of the Architect in Practice, Organization for Efficient Practice, Part 6;
Victor Gruen Assocs.—Oct. 1961, pp. 133-138

Victor Gruen Assocs.—Oct. 1961, pp. 133-138
ndustrial Buildings. Building Types Study 300—Nov. 1961, pp. 169-188. Plant, Connecticut Spring Corp., Farmington Industrial Park, Farmington, Conn.; Walter F. Greene Jr., archt.—Nov. 1961, BTS, pp. 180-181. Research Center, Koppers Co., Inc., Monroeville, Pa.; Voorhees Walker Smith Smith & Haines, archts.—Nov. 1961, BTS, pp. 176-179. Research Laboratories, Parke, Davis & Co., Ann Arbor, Mich.; Skidmore, Owings & Merrill, archts.—Nov. 1961, BTS, pp. 170-175. Plant, Rose Marie Reid, Inc., Van Nuys, Cal.; Victor Gruen Assocs., archts.—Nov. 1961, BTS, pp. 186-188. Plant, Edwin J. Schoettle Co., Inc., upper Gwynedd Township, Pa.; Vincent G. Kling, archt.—Nov. 1961, BTS, pp. 186-184. Upper Gwynedd Township, Pa.; Vincent G. Kling, archt.—Nov. 1961, BTS, pp. 184-185

ternational Arrival and Airline Wing Buildings, Idlewild, New York Interna-tional Airport: Skidmore, Owings & Mer-rill, archts.—Sept. 1961, pp. 157-161 International

Ireland, John, Elementary School, Odessa, Texas; Peters and Fields, archts.—July 1961, BTS, p. 171 Islandia Hotel, San Diego, Cal.; Eugene Weston Jr., archt.—Sept. 1961, BTS, pp.

146-147

ory Tower Restaurant and Art Gallery, Santa Monica, Cal.; Richard L. Dorman & Assocs., archts.—July 1961, pp. 154-155 Ivory

I

Japanese Cultural Center, San Francisco; Minoru Yamasaki and Assocs., archts.; Takenaka and Assocs., assoc. archts.; Van Bourg, Nakamura and Assocs., assoc. archts.—July 1961, pp. 138-140 Jellicoe, G. A. "Crystal 61." Exhibition Building, London, England—Aug. 1961, News, p. 18 Johnson & Anderson, archts.; Western Lum-ber Co. Offices, National City, Cal.—Aug. 1961, BTS, p. 137

Kahn and Jacobs, archts.; American Airlines
Terminal, Idlewild, New York International Airport—Sept. 1961, pp. 170-171
Kane, Michael M., and Perkins & Will,
archts.; Education Addition, Temple of
Congregation Tigereth Israel, Cleveland,
Ohio—July 1961, BTS, p. 176
Karachi Intercontinental Hotel, Karachi,
Pakistan; William B. Tabler, archt.—
Sept. 1961, BTS, pp. 136-137

Karachi Intercontinental Hotel, Karachi, Pakistan; William B. Tabler, archt.—
Sept. 1961, BTS, pp. 136-137
Katz, Waisman, Blumenkranz, Stein, Weber, archts.; Publis School 46, Brooklyn, N.Y.—Oct. 1961, BTS, pp. 156-158
Keck, George Fred-William Keck, archts.; Robert E. Bloom House, North Muskegon, Mich.—Nov. 1961, pp. 156-158
Kenwood School, Kenwood, Sonoma County, Cal.; Reid Rockwell Banwell & Tarics, archts.—July 1961, BTS, p. 172
Ketchum and Sharp, archts.; Darien High School, Darien, Conn.—Oct. 1961, BTS, pp. 164-165

Ketchum and Sharp, archts.; Darien High School, Darien, Conn.—Oct. 1961, BTS, pp. 164-165
Killingsworth, Brady & Smith, archts.; Hof's Hut Restaurant, Long Beach, Cal.—July 1961, pp. 156-157
Kirk, Wallace, McKinley & Assocs., B. Marcus Priteca & James Chiarelli, and Bassetti & Morse, archts.; Seattle Center, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 100
Kling, Vincent G., archt.; Plant, Edwin J. Schoettle Co., Inc., Upper Gwynedd Township, Pa.—Nov. 1961, BTS, pp. 184-185. With Oliver & Smith, archts.; Public Safety Building (Police, Jail, Courts), Norfolk, Va.—Aug. 1961, pp. 111-114
Koch, Carl, & Assocs., and Pietro Belluschi, assoc. archts.; Park Avenue Congregational Church, Arlington, Mass.—Nov. 1961, pp. 143-148
Koppers Co., Inc., Research Center, Monroeville, Pa.; Voorhees Walker Smith Smith & Haines, archts.—Nov. 1961, BTS, pp. 176-179
Kovaki-en Hotel, Hakone, Janen, Junea

pp. 176-179

Kowaki-en Hotel, Hakone, Japan; Junzo Yoshimura, archt.—Sept. 1961, BTS, pp. 148-150

Laboratories. See Research Buildings. Lescaze, William, and Matthew Del Gaudio, archts.; City and Municipal Courts Build-ing, New York City—Aug. 1961, pp. 107-110

Ing, New York City—Aug. 1961, pp. 107110
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148; Part 2—Oct. 1961, TSS, p. 184. "New
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Los Angeles; Albert C. Martin and Assocs., archts.—Aug. 1961, AE, p. 1942-144.
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Details Cut Mechanical and Electrical
Costs in Gyms"—Nov. 1961, AE, p. 199.
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Station: Site for New Madison Square
Garden," New York City—Sept. 1961,
News, p. 14

News, p. 14

Madison Square Garden, "Penn Station:
Site for New Madison Square Garden,"
New York City; Charles Luckman Assocs., archts.—Sept. 1961, News, p. 14
Mann & Harrover, archts.; Richland Jr.
High School, Memphis, Tenn.—Oct. 1961,
BTS, pp. 170-171

BTS, pp. 170-171
Manufacturers' National Bank, Bloomfield
Township, Mich.; Louis G. Redstone,
archt.; Avner Naggar, assoc. archt.—
Aug. 1961, BTS, p. 132
Mariott Motor Hotel, Bala Cynwyd, Pa.;
William B. Tabler, archt.—Sept. 1961,
BTS, p. 139
Martin Albart C. C. 14

Martin, Albert C., and Assocs., archts.; Water and Power Building, Los Angeles—Aug. 1961, AE, pp. 142-144
McCarthy, Francis Joseph, archt.; W. Coy Filmer House, Downieville, Sierra County, Cal.—Nov. 1961, pp. 162-164

ty, Cal.—Nov. 1991, pp. 102-104
McLeod and Ferrara, archts.; West Bethesda High School, Montgomery County,
Md.—Oct. 1961, BTS, pp. 139-161
McPherson Sr. High School, McPherson,
Kan.; Shaver & Co., archts.—July 1961,

AE, p. 191

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Merchants National Bank, South 3rd St. Branch, Terre Haute, Ind.; Evans Woolen III and Yeager Archts., assoc. archts.—Aug. 1961, BTS, p. 133

Mitchell & Ritchey, archts.; The Auditorium, Pittsburgh—Nov. 1961, pp. 165-168

Model Testing. "Model Tests Predict Space Frame Behavior," by Kenneth C. Naslund—Dec. 1961, AE, pp. 152-154

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Mt. Vernon High School, Mt. Vernon, N.Y. Sherwood Mills & Smith archts.—July

Mt. Vernon High School, Mt. Vernon, N.Y.; Sherwood, Mills & Smith, archts.—July 1961, BTS, p. 169 Mowry, Origin L., School, Irvington, Cal.; Falk and Booth, archts.—July 1961, BTS,

Multi-Airline Terminal, Idlewild, New York International Airport; I. M. Pei & As-socs., archts.—Sept. 1961, pp. 168-169

N
Naramore, Bain, Brady & Johanson, archts.;
Pavilions, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 102. With Minoru Yamasaki, archt.; Federal Science Pavilion, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 100
Neiman-Marcus Shopping Center, Fort Worth, Texas; Edward Larrabee Barnes, archt.; Preston M. Geren, assoc. archt.—Oct. 1961, p. 132
Nelsen, Ibsen A., and Russell B. Sabin, archts.; Service Center, Chief Seattle Council, Boy Scouts of America, Seattle, Wash.—Aug. 1961, BTS, pp. 138-140
Neuhaus and Taylor, archts.; Holland Mortgage & Investment Corp. Offices, Houston—Aug. 1961, BTS, pp. 120-122
New York City and Municipal Courts Building, New York City; William Lescaze and Matthew Del Gaudio, archts.—Aug. 1961, pp. 107-110

pp. 107-110 New York World's Fair 1964, The Galaxon; Paul Rudolph, archt.—July 1961, News,

p. 12 Norfolk Public Safety Building (Police, Jail, Courts), Norfolk, Va.; Vincent G. Kling and Oliver & Smith, archts.—Aug. 1961, pp. 111-114

North Shore Congregation Israel, Synagogue, Glencoe, Ill.; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 130-

Northwest, Northeast, Braniff Terminal, Idlewild, New York International Ter-minal; White and Mariani, archts.—Sept. 1961, pp. 178-179

Oak Grove Jr. High School, Pinellas County, Fla.; Bruce & Parrish, archis.--July 1961, AE. n. 194

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Oliver & Smith and Vincent G. Kling, archts.: Public Safety Building (Police

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ossipoff, Vladimir, & Assocs., archts.; Kahili Branch, First National Bank of Hawaii, Honolulu—Aug. 1961, BTS, pp. 134-135. The Snack Shop, Honolulu—July 1961, p. 158

an American World Airways Terminal, Idlewild, New York International Airport; Tippetts-Abbett-McCarthy-Stratton, archts.; Ives, Turano and Gardner, assoc. archts.—Sept. 1961, pp. 165-167 anel Cooling. "Integrating Mechanical Systems: A Design Approach," by Gershon Meckler—Dec. 1961, AE, pp. 148-151

Panel 151

Park Avenue Congregational Church, Ar-lington, Mass.; Pietro Belluschi and Carl Koch & Assocs., assoc. archts.—Nov. 1961, pp. 143-148

Parke, Davis & Co., Research Laboratories. Ann Arbor, Mich.; Skidmore, Owings & Merrill, archts.—Nov. 1961, BTS, pp. 170-

Parkland Jr. High School, and Randolph Jr. High School, Montgomery County Md.; Rhees Burket, archt.—July 1961, BTS, p.

Patri, Fietro, archt.; Michael Saphier Assocs., designers; Standard Oil of California Pavilion, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 105
Pei, I. M., & Assocs., archts.; Multi-Airline
Terminal, Idlewild, New York International Airport, New York City—Sept. 1961, pp. 168-169 Patri, Pietro, archt.; Michael Saphier

Pennsylvania Station, "Penn Station: Site for New Madison Square Garden," New

York City; Charles Luckman Assocs., archts.—Sept. 1961, News, p. 14
Perkins & Will, archts.; Homewood-Flossmoor High School, Flossmoor, Ill.—July 1961, BTS, p. 175. With Michael M. Kane, archt.; Education Addition, Temple of Congregation Tigereth Israel, Cleveland, Ohio—July 1961, BTS, p. 176
Peters and Fields, archts.; John Ireland Elementary School, Odessa, Texas—July 1961, BTS, p. 171
Pilafian, Suren, archt.; Holland Sr. High School, Holland, Mich.—July 1961, BTS, p. 179

179

p. 179
Plastics. "A Lexicon for Plastics in Building," Part I, by William Demarest—Oct. 1961, BC, pp. 189-192; Part II—Nov. 1961, BC, pp. 203-204
Practice. See Architectural Practice.
Price, Robert B., archt.; Forest Products Industry Pavilion, Century 21 Exposition, Castilla Wash. Aug. 1961, p. 105. Exhibi-

Industry Pavilion, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 105. Exhibition Buildings, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 102
Prince of Peace Lutheran Church for the Deaf, St. Paul, Minn.; Ralph Rapson, archt.—Dec. 1961, pp. 111-114
Priteca, B. Marcus, & James Chiarelli, Kirk, Wallace, McKinley & Assocs., and Bassetti & Morse, archts.; Seattle Center, Seattle, Wash.—Aug. 1961, p. 100

Priteca, B. Marcus, & James Chiarelli, Kirk, Wallace, McKinley & Assocs., and Bassetti & Morse, archts.; Seattle Center, Seattle, Wash.—Aug. 1961, p. 100

Professional Center Office Building, Conejo Village, Cal.; Neils Stoermer and Perry Neuschatz, designers—Aug. 1961, BTS, pp. 128-129

Public Buildings. City and Municipal Courts Building, New York City; William Lescaze and Matthew Del Gaudio, archts.—Aug. 1961, pp. 107-110. Flint School District Administration Building, Flint, Mich.; Linn Smith Assocs., archts.—Aug. 1961, BTS, p. 136. Public Safety Building (Police, Jail, Courts), Norfolk, Va.; Vincent G. Kling and Oliver & Smith, archts.—Aug. 1961, pp. 111-114. U.S. Consulate, Tabriz, Iran; Edward Larrabee Barnes, archt.—Oct. 1961, pp. 121-125

Public School 46, Brooklyn, N.Y.; Katz, Waisman, Blumenkranz, Stein, Weber, archts.—Oct. 1961, BTS, pp. 156-158

Queen Emma Gardens Development, Honolulu; Minoru Yamasaki and archts.—July 1961, pp. 132-135

Randolph Jr. High School, and Parkland Jr. High School, Montgomery County, Md.; Rhees Burket, archt.—July 1961, BTS, p.

Rapson, Ralph, archt.; Prince of Peace Lutheran Church for the Deaf, St. Paul, Minn.—Dec. 1961, pp. 111-114
"Recent British Church Design: An Agreement to be Radical," by Peter Hammond—Dec. 1961, pp. 115-122
Recreation Buildings. The Auditorium, Pittsburgh; Mitchell & Ritchey, archts.—Nov. 1961, pp. 165-168. Century 21 Exposition, Seattle, Wash.; Paul Thiry, primary archt.—Aug. 1961, pp. 95-106. Christian Witness Child-Care Center, Century 21 Exposition, Seattle, Wash.; Durham, Anderson & Freed, archts.—Aug. 1961, p. mary archt.—Aug. 1961, pp. 95-106. Christian Witness Child-Care Center, Century 21 Exposition, Seattle, Wash.; Durham, Anderson & Freed, archts.—Aug. 1961, p. 105. Coliseum 21 Exhibition Hall, Century 21 Exposition, Seattle, Wash.; Paul Thiry, archt.—Aug. 1961, pp. 98-99: "Crystal 61," Exhibition Building, London, England; G. A. Jellicoe, archt.—Aug. 1961, News, p. 18. Federal Science Pavilion, Century 21 Exposition, Seattle, Wash.; Minoru Yamasaki and Naramore, Bain, Brady & Johanson, archts.—Aug. 1961, p. 100. Forest Products Industry Pavillon, Century 21 Exposition, Seattle, Wash.; Robert B. Price, archt.—Aug. 1961, p. 105. The Galaxon, New York World's Fair 1964, New York City; Paul Rudolph, archt.—July 1961, News, p. 12. "Penn Station: Site for New Madison Square Garden," New York City; Charles Luckman Assocs., archts.—Sept. 1961, News, p. 14. Seattle Center, Century 21 Exposition, Seattle, Wash.; Kirk, Wallace, McKinley & Assocs., B. Marcus Priteca & McKinley & Assocs., B. Marcus Priteca & James Chiarelli, and Bassetti & Morse, archts.—Aug. 1961, p. 100. "Space Needle," Century 21 Exposition, Seattle, Wash.; John Graham & Co., archts.—Aug. 1961, p. 104. Standard Oil of California Pavilion, Century 21 Exposition, Seattle, Wash.; Michael Saphier Assocs., designers; Pietro Patri, archt.—Aug. 1961, p. 105. Exhibition buildings, Century 21 Exposition, Seattle, Wash.; Robert B. Price, archt.—Aug. 1961, p. 102. Exhibition buildings, Century 21 Exposition, Seattle, Wash.; Waldron & Dietz, archts.—Aug. 1961, p. 102. Pavilion, Century 21 Exposition, Seattle, Wash.; Naramore, Bain, Brady & Johanson, archts.—Aug. 1961, p. 102. Pavilion, Century 21 Exposition, Seattle, Wash.; Naramore, Bain, Brady & Johanson, archts.—Aug. 1961, p. 102. Technical Roundup "Vibration Isolation System Shuts Out Bowling Alley Noise"—Oct. 1961, AE, p. 182
Redstone, Louis G., archt.; Avner Naggar, assoc. archt.; Manufacturers' National Bank, Bloomfield Township, Mich.—Aug. 1961, BTS, p. 182 James Chiarelli, and Bassetti & Morse

assoc. archt.; Manufacturers' National Bank, Bloomfield Township, Mich.—Aug. 1961, BTS, p. 132
Reid Rockwell Banwell & Tarics, archts.; Kenwood School, Kenwood, Sonoma County, Cal.—July 1961, BTS, p. 172
Religious Buildings. Synagogue for North Side Congregation Israel, Glencoe, Ill.; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 130-131. Park Avenue Congregational Church, Arlington, Mass.; Pietro Belluschi and Carl Koch & Assocs., assoc. archts.—Nov. 1961, pp. 143-148. Prince of Peace Lutheran Church for the Deaf, St. Paul, Minn.; Ralph Rapson, archt.—Dec. 1961, pp. 111-114. St. John's Abbey, Minn.; Marcel Breuer, archt.—Nov. 1961, pp. 131-142. "Recent British Church Design: An Agreement to be Radical," by Peter Hammond—Dec. 1961, pp. 115-122 cal," by

Church Design: An Agreement to be Radical." by Peter Hammond—Dec. 1961, pp. 115-122
Research Buildings. Engineering Laboratory, Harvard University, Cambridge, Mass.; Minoru Yamasaki and Assocs., archts.—July 1961, pp. 128-129. Research Center, Koppers Co., Inc., Monroeville, Pa.; Voorhees Walker Smith Smith & Haines, archts.—Nov. 1961, BTS. pp. 176-179. Research Laboratories, Parke, Davis & Co., Ann Arbor, Mich.; Skidmore, Owings & Merrill, archts.—Nov. 1961, BTS. pp. 170-175
Restaurants. Galleon Restaurant, Pacific Marina, Alameda, Cal.; Campbell & Wong, Worley K. Wong, archt.—July 1961, pp. 151-153. Hof's Hut Restaurant, Long Beach, Cal.; Killingsworth, Brady & Smith, archts.—July 1961, pp. 156-157. The Ivory Tower Restaurant and Art Gallery, Santa Monica, Cal.; Richard L. Dorman & Assocs., archts.—July 1961, pp. 154-155. The Snack Shop, Honolulu; Vladimir Ossipoff and Assocs., archts.—July 1961, p. 158
Richland Jr. High School, Memphis, Tenn.; Mann & Harrover, archts.—Oct. 1961, BTS, pp. 170-171
Riverbank Elementary School, Stamford, Conn.; Curtis and Davis, archts.—Oct. 1961, BTS, pp. 168-169
Roofs. "Hammock-Type Roof for Dulles Airport"—Nov. 1961, AE, p. 198
Rose, Alexander, School, Milpitas, Cal.; Van Bourg, Nakamura & Assocs., archts.—July 1961, BTS, pp. 182-183
Rosewille District Hospital, Roseville, Cal.; Re& Whitaker Allen, archt.—Dec. 1961, BTS, pp. 182-183
Roseville District Hospital, Roseville, Cal.; Re& Whitaker Allen, archt.—Dec. 1961, BTS, pp. 182-183
Roseville District Hospital, Roseville, Cal.; Re& Whitaker Allen, archt.—Dec. 1961, BTS, pp. 182-183
Roseville District Hospital, New York City—July 1961, News, p. 12

Saarinen, Eero. Obituary-Oct. 1961, News. p. 10

p.110
Saarinen, Eero, and Assocs., archts.; Trans
World Airlines Terminal, Idlewild, New
York International Airport—Sept. 1961,
pp. 162-164
St. Frances Xavier Cabrini Hospital, Melbourne, Australia; Stephenson & Turner,
archts.—Dec. 1961, BTS, pp. 141-143
St. John's Abbey, Minn.; Marcel Breuer,
archt.—Nov. 1961, pp. 131-142
St. Paul's School, Dormitories, Concord,

N.H.; Edward Larrabee Barnes, archt.— Oct. 1961, pp. 128-129 Saphier, Michael, Assocs., designers; Pietro Patri, archt.; Standard Oil of California

Patri, archt.; Standard Oil of California Pavilion, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 105 Sargent - Webster - Crenshaw & Folley, archts.; Hurlbut W. Smith Jr. High School, Syracuse, N.Y.—July 1961, AE, 188

p. 188 Schlesinger, Frank, archt.; Ira Bernstein House, Princeton, N.J.—Oct. 1961, pp. House,

Gwynedd Township, Pa.; Vincent G. Kling, archt.—Nov. 1961, BTS, pp. 184-

Schools. Building Types Study 296: Air Conditioned Schools—July 1961, pp. 163-182. Building Types Study 299—Oct. 1961, pp. 155-174. Amaryllis Park Primary School, Sarasota, Fla.; Mark Hampton, archt.—Oct. 1961, BTS, pp. 172-174. Central High School, Phoenix, Ariz.; John Sing Tang and Assocs., archts.—July 1961, BTS, p. 178. Darien High School, Darien, Conn.; Ketchum and Sharp, archts.—Oct. 1961, BTS, pp. 164-165. Fort Stockton High School, Flossmoor, Ill.; Perkins & Will, archts.—July 1961, BTS, p. 179. Homewood-Flossmoor High School, Flossmoor, Ill.; Perkins & Will, archts.—July 1961, BTS, p. 179. Homewood-Flossmoor High School, Flossmoor, Ill.; Perkins & Will, archts.—July 1961, BTS, p. 171. Kenwood School, Kenwood, Sonoma County, Cal.; Reid Rockwell Banwell & Tarica, archts.—July 1961, BTS, p. 171. Kenwood School, Kenwood, Sonoma County, Cal.; Reid Rockwell Banwell & Tarica, archts.—July 1961, BTS, p. 172. McPherson Sr. High School, McPherson, Kan.; Shaver & Co., archts.—July 1961, AE, p. 191. Mt. Vernon High School, Mt., Vernon, N.Y.; Sherwood, Mills and Smith, archts.—July 1961, BTS, p. 169. Origin L. Mowry School, Irvington, Cal.; Falk and Booth, archts.—July 1961, BTS, p. 169. Origin L. Mowry School, Irvington, Cal.; Falk and Booth, archts.—July 1961, BTS, p. 171. Kelhond, Falk and Booth, archts.—July 1961, BTS, p. 171. Falk and Booth, archts.—July 1961, BTS, p. 171. Triph School, Mills and Smith, archts.—July 1961, AE, p. 194. Public School 46. Brooklyn, N.Y.; Katz, waisman, Blumenkranz, Stein, Weber, archts.—Oct. 1961, BTS, pp. 170-171. Riverbank Elementary School, Montgomery County, Md.; Rhees Burket, archts.—Oct. 1961, BTS, pp. 168-169. Alexander Rose School, Mills and Surket, July

School Planning," by Henry Wright—July 1961, BTS, pp. 168, 170. "Quartz Lamps Heat and Light a Gymnasium"—Nov. 1961, AE, p. 198. "Two Details Cut Mechanical and Electrical Costs in Gyms"—Nov. 1961, AE, p. 197
Seattle Center, Century 21 Exposition, Seattle, Wash.; Kirk, Wallace, McKinley & Assocs, B. Marcus Priteca & James Chiarelli, and Baasetti & Morse, archts.—Aug. 1961, p. 100
Shaver & Co., archts.; McPherson Sr. High School, McPherson, Kan.—July 1961, AE, p. 191

p. 191
Sherwood, Mills & Smith, archts.; Mt. Vernon High School, Mt. Vernon, N.Y.—July 1961, BTS, p. 169
Shimizu, Hideki, and Kazuyuki Matsushita, archts.; Seattle Fountain, Seattle, Wash.—Aug. 1961, p. 106
Shopping Centers. Neiman-Marcus Shopping Center, Fort Worth, Texas; Edward Larrabee Barnes, archt.; Preston M. Geren, assoc. archt.—Oct. 1961, p. 132.
Simmong Co. Plant. Munster, Ind.: A. Eps

Center, Fort Worth, Texas; Edward Larrabee Barnes, archt. Preston M. Geren, assoc. archt.—Oct. 1961, p. 132
Simmons Co., Plant, Munster, Ind.; A. Epstein and Sons, Inc., archts.—Nov. 1961, BTS, p. 186-188
Skidmore, Owings & Merrill, archts.; Chase Manhattan Bank Building, New York City.—July 1961, pp. 141-150. Drexel National Bank, Lakemeadows Shopping Center, Chicago—Oct. 1961, pp. 144-146. Hartford Building, Chicago—Sept. 1961, pp. 121-126. Master plan, University of Illinois, Chicago—Oct. 1961, News, pp. 12-13. International Arrival and Airline Wing Buildings, Idlewild, New York International Airport—Sept. 1961, pp. 157-161. Research Laboratories, Parke, Davis & Co., Ann Arbor, Mich.—Nov. 1961, BTS, pp. 170-175. United Air Lines Terminal, Idlewild, New York International Airport—Sept. 1961, pp. 172-174. Executive Headquarters, Upjohn Co., Kalamazoo, Mich.—Dec. 1961, pp. 101-110
Smith, Hurlbut W., Jr. High, School, Syracuse, N.Y.; Sargent-Webster-Crenshaw & Folley, archts.—July 1961, AE, p. 188
Smith, Linn, Assocs., archts.; Flint School District Administration Building, Flint, Mich.—Aug. 1961, BTS, p. 136
Snack Shop, The, Honolulu; Vladimir Ossipoff and Assocs., archts.—July 1961, p. 158
Sound Systems. "Sound Systems," by Robert B. Newman and William J. Cavanaugh—Dec. 1961, BC, 161-162
South Elementary School, Andover, Mass.; Hugh Stubbins & Assocs., archts.—July 1961, BTS, p. 173
Space Frame. "Model Tests Predict Space Frame Behavior." by Kenneth C. Nasiunet

South Park High School, Beaumont, Texas; Golemon & Rolfe, archts.—July 1961, BTS, p. 173

Space Frame. "Model Tests Predict Space Frame Behavior," by Kenneth C. Nasiund—Dec. 1961, AE, pp. 152-164. "Space Structures in Steel," by Robert E. Rapp—Nov. 1961, AE, pp. 190-194. Space Frames, Parts 1, 2, by Seymour Howard—Nov. 1961, TSS, pp. 195-196

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Sports Facilities. See Recreation Buildings. Standard Oil of California Pavilion, Century 21 Exposition, Seattle, Wash.; Michael Saphier Assocs., designers; Pietro Patri, archt.—Aug. 1961, p. 105

Steel. "Space Structures in Steel," by Robert E. Rapp—Nov. 1961, AE, pp. 190-194

Stephenson & Turner, archts.; St. Frances Xavier Cabrini Hospital, Melbourne, Australia—Dec. 1961, BTS, pp. 141-143

Stoermer, Neils, and Perry Neuschatz, designers; Professional Center Office Bullding, Conejo Village, Cal.—Aug. 1961, BTS, pp. 128-129

Stone, Edward Durell, interviewed by Jonathan Barnett—Sept. 1961, News, p. 10

Stone, Marraccini & Patterson, archts.; El Camino Hospital, Mountain View, Cal.—Dec. 1961, BTS, pp. 128-138.

Stores, Lighting for Stores, Part 1, by Daniel Schwartsman—Aug. 1961, TSS, pp. 148-150

Structure, Floor Framing Systems, Parts 1, 2, by John Masscioni—Dec. 1961, TSS, pp. 155-166

Stubbins, Hugh, & Assocs., archts.; South Elementary School, Andover, Mass.—July 1961, BTS, pp. 166-167. Winthrop Elemen-

tary School, Hamilton, Mass.—July 1961, BTS, pp. 164-165 Sun Control, "Shaded Walls Proposed to Out Solar Heatt"—Aug. 1961, AE, pp. 145-147 Synagogues. See Religious Buildings.

T

Tabler, William B., archt.; Buenos Aires Intercontinental Hotel, Buenos Aires, Argentina—Sept. 1961, BTS, pp. 133-134. Carlton Beach Hotel, Southampton, Bermuda—Sept. 1961, BTS, p. 135. El Ponce Intercontinental Hotel, Ponce, Puerto Rico—Sept. 1961, BTS, p. 138. Karachi Intercontinental Hotel, Karachi, Pakistan —Sept. 1961, BTS, pp. 136-137. Mariott Motor Hotel, Bala Cynwyd, Pa.—Sept. 1961, BTS, p. 139

1961, BTS, p. 139

Tang, John Sing, and Assocs., archts.; Central High School, Phoenix, Ariz.—July 1961, BTS, p. 178

Temple of Congregation Tigereth Israel, Education Addition, Cleveland, Ohio; Michael M. Kane and Perkins & Will, archts.—July 1961, BTS, p. 176

Terrazzo. "Thin Terrazzo Toppings," by Ray E. Cumrine—July 1961, BC, pp. 201-202

Thiry, Paul, archt; Bank, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 106.

Coliseum 21 Exhibition Hall, Century 21 Exposition, Seattle, Wash.—Aug. 1961, pp. 98-99. As primary architect; Century 21 Exposition, Seattle, Wash.—Aug. 1961, pp. 96-106

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Exposition, Seattle, Wash.—Aug. 1961,
pp. 98-99. As primary architect: Century
21 Exposition, Seattle, Wash.—Aug. 1961,
pp. 95-106
Time-Saver Standards. Floor Framing Systems, Parts 1, 2, by John Mascioni—Dec.
1961, pp. 155-156. Lighting for Stores,
Part 1, by Daniel Schwartzman—Aug.
1961, p. 148; Part 2—Oct. 1961, p. 184.
Space Frames, Parts 1, 2, by Seymour
Howard—Nov. 1961, pp. 195-196. Store
Fixtures, Parts 4, 5, by Daniel Schwartzman—Aug. 1961, pp. 149-150
Tippetts-Abbett-McCarthy-Stratton, archts.;
Ives, Turano and Gardner, assoc.
archts.; Pan American World Airways
Terminal, Idlewild, New York International Airport—Sept. 1961, pp. 165-167
Tishman 615 Building, Los Angeles; Victor
Gruen Assocs., and Daniel, Mann, Johnson & Mendenhall, assoc. archts.—Oct.
1961, pp. 139-141
Transportation Buildings. Idlewild, New
York International Airport—Sept. 1961,
pp. 151-190. American Airlines Terminal,
Idlewild; Kahn & Jacobs, archts.—Sept.
1961, pp. 170-171. International Arrival
and Airline Wing Buildings, Idlewild;
Skidmore, Owings & Merrill, archts.—
Sept. 1961, pp. 167-161. Eastern Air Lines
Terminal, Idlewild; Chester L. Churchill,
archt.—Sept. 1961, pp. 175-177. Multi-Airline Terminal, Idlewild; Chester L. Churchill,
archt.—Sept. 1961, pp. 175-177. Multi-Airline Terminal, Idlewild; Then Socs., archts.—Sept. 1961, pp. 188-169.
Northwest, Northeast, Braniff Terminal,
Idlewild; White and Mariani, archts.—
Sept. 1961, pp. 178-179. Pan American
World Airways Terminal, Idlewild; Tippetts-Abbett-McCarthy-Stratton, archts.
—Sept. 1961, pp. 172-174. "How Idlewild
was Planned for the Jet Age." by Dudley
Hunt Jr.—Sept. 1961, pp. 165-166
Trans World Airlines Terminal, Idlewild
was Planned for the Jet Age." by Dudley
Hunt Jr.—Sept. 1961, pp. 165-166
Trans World Airlines Terminal, Idlewild,
New York International Airport; Eero
Saarinen and Assocs., archts.—Sept. 1964, pp. 162-164
Treister, Kenneth, archt.; Howard Ahern,
assoc. archt

Union Bank, Beverly Hills, Cal.; Sidney Eisenshtat, archt.—Oct. 1961, pp. 142-143 United Air Lines Terminal, Idlewild, New York International Airport; Skidmere, Owings & Merrill, archts.—Sept. 1961, pp. 172-174

U.S. Consulate, Tabris, Iran; Edward Larrabee Barnes, archt.—Oct. 1961, pp. 121-125

Upjohn Co., Executive Headquarters, Kalamazoo, Mich.; Skidmore, Gwings & Merrill, archts.—Dec. 1961, pp. 101-110

Urbahn, Brayton and Burrows, archts.; Downstate Medical Center, Brooklyn, N.Y. —Dec. 1961, BTS, pp. 144-146

Van Bourg, Nakamura & Assocs., archts.; Alexander Rose School, Milpitas, Cal.— July 1961, BTS, p. 181 Vista Grande Primary School, Daly City, Cal.; Mario J. Ciampi, archt.; Paul W. Reiter, assoc. archt.—Oct. 1961, BTS, pp. 162-163

Voorhees Walker Smith Smith & Haines, archts.; Research Center, Koppers Co., Inc., Monroeville, Pa.—Nov. 1961, BTS,

Wagener, Hobart D., archt.; Green Shield Office Building, Boulder, Colo.—Aug. 1961, BTS, pp. 124-125
Waldron & Dietz, archts.; Exhibition Buildings, Century 21 Exposition, Seattle, Wash.—Aug. 1961, p. 102
Wallboard. "A Review of Gypsum Wallboard Systems," by Howard P. Vermilya—Aug. 1961, BC, pp. 155-156
Warnecke, John Carl, and Rex Whitaker Allen, assoc. archts.; French Hospital, San Francisco—Dec. 1961, BTS, pp. 136-137

Mater and Power Building, Los Angeles; Albert C. Martin and Assoca, archts.— Aug. 1961, AE, pp. 142-144 Wayne State University, Helen Newberry Joy Residence for Women, Detroit; Ed-ward Larrabee Barnes, archt.—Oct. 1961,

pp. 130-131
Weese, Harry, archt.; Proposed vacation house, Aspen, Colo.—Oct. 1961, News, pp. 14-15

14-15
West Bethesda High School, Montgomery
County, Md.; McLeod and Ferrara,
archts.—Oct. 1961, BTS, pp. 159-161
Western Lumber Co. Offices, National City,
Cal.; Johnson & Anderson, archts.—Aug.
1961, BTS, p. 137
Weston, Eugene, Jr., archt.; Islandia Hotel,
San Diego, Cal.—Sept. 1961, BTS, pp. 146147

San Diego, Cal.—Sept. 1961, BTS, pp. 146147
Westport Road High School, Jefferson County, Ky.; Hartstern, Louis & Henry, archts.—July 1961, BTS, p. 182
White and Mariani, archts.; Northwest, Northeast, Braniff Terminal, Idlewild, New York International Airport—Sept. 1961, pp. 178-179
Wiener, William B., Morgan and O'Neal, archts.; Woodlawn High School, Shreveport, La.—Oct. 1961, BTS, pp. 166-167
Winthrop Elementary School, Hamilton, Mass.; Hugh Stubbins & Assocs., archts.—July 1961, BTS, pp. 164-165
Woodlawn High School, Shreveport, La.; William B. Wiener, Morgan and O'Neal, archts.—Oct. 1961, BTS, pp. 166-167
Woolen, Evans, III, and Yeager Archts., assoc. archts.—South 3rd St. Branch, Merchants National Bank, Terre Haute, Ind.—Aug. 1961, BTS, p. 133
Wright, Henry, "The Impact of Air Conditioning on School Planning"—July 1961, BTS, pp. 168-170
Wright & Selby, archts.; Central National Motor Bank, Oklahoma City—Aug. 1961, BTS, p. 123

XYZ

Yamasaki, Minoru, archt.; Current Work: Behavioral Sciences Building, Harvard University, Cambridge, Mass.; Engineering Laboratory, Harvard University, Cambridge, Mass.; Synagogue for North Shore Congregation Israel, Glencoe, III.; Queen Emma Gardens Development, Honolulu; Library, Butler University, Indianapolis; Japanese Cultural Center, San Francisco—July 1961, pp. 125-140. With Naramore, Bain, Brady & Johanson, archts; Federal Science Pavilion, Century 21 Exposition, Seattle—Aug. 1961, p. 100 Yeager Archts., and Evans Woolen III, assoc. archts.; South 3rd St. Branch, Merchants National Bank, Terre Haute, Ind.—Aug. 1961, BTS, p. 133 Yoshimura, Junzo, archt.; Hotel Kowaki-en, Hakone, Japan—Sept. 1961, BTS, pp. 148-150

Index to Advertising

PRE-FILED CATALOGS of the manufacturers listed below are available in the 1961 Sweet's Catalog File as follows: (A) Architectural File (green), (IC) Industrial Construction File (blue), (LC) Light-Construction File (yellow).

A-IC	Adam Electric Co., Frank 92 Adams & Westlake Co., The 241
A	Adams & Westlake Co., The 241
	Adams & Westlake Co., The 241 Aerofin Corporation 92 Airtherm Mfg. Co
	Airtherm Mfg. Co 183
A-IC	Allegheny Ludlum Steel Corp.
	59 to 66
A-IC-LC	Alsynite Company of America,
	Reichold Chemical Division 204-200
A-IC	Aluminum Company of America 77
	Amerada Glass Corporation 165
IC	American Air Filter Co., Inc. 170-171
	American Gas Association
	79 to 82, 100, 272
A	American Laundry Machinery
	American Laundry Machinery Industries 157
A	Industries 157 American Olean Tile Company 98-99 American Steel and Wire Div. 68-69 American Sterilizer 213 American Telephone and Tele-
	American Steel and Wire Div. 68-69
A	American Sterilizer 213
A-LC	American Telephone and Tele-
A-LC	Anaconda American Brass Co 11 Anderson Corp 178-179
A-LC	Anderson Corp 178-179
A	Anemostat Corporation of America
	America 188
	Architectural Record 262-263
A-IC-LC	Arkla Air Conditioning Corp 100
A-IC-LC	Armstrong Cork Company \$4-35 Autocall Company, The 206
	Autocall Company, The 206
	Automatic Canteen Co. of
	America 97
A-LC	Azrock Floor Products Div 85
A	Bally Case and Cooler, Inc 212
A-IC-LC	Barrett Div., Allied Chemical
	Corp 226-227 Bell Telephone System 33
A-LC	Bell Telephone System 33
A-IC	Bethlehem Steel Company 201
	Bigelow Sanford
A	Blakeslee & Company, G. S 242
	Boeckh, E. H. & Associates 242
A-IC	Borden Metal Products Co 81
	Buensod Stacey Corp 89
	Carnes Corporation 22-23 Carpenter & Company, L. E 21
	Carpenter & Company, L. E 21
	Carrollton Mfg. Co 258
A-IC	Caterpiller Tractor Co 44
A-IC	Ceco Steel Products Corporation
	210-211
A	Century Lighting Co 242 Chrysler Corporation 41
	Chrysler Corporation 41
A	Cirvae Plastics 172
A-IC	Cleaver-Brooks Co 209
A-IC	Concrete Reinforcing Steel Institute
	Institute
A	Connor Lumber and Land Co. 212
A-IC	Cookson Co., The 186
A-IC-LC	Crane Co 32
	Da-Lite Screen Co., Inc 240 Devoe & Raynolds Company, Inc. 221
- A-LC	Devoe & Raynolds Company, Inc. 221
	Dodge Books 240, 250 to 255
	Dodge Reports 236
A	Dover Corporation 26
	Du Pont de Nemours & Co., E. I.
	19, 53, 93
	Elkirt Corporation 92
A-TC	Eastman Chemical Products, Inc.

A Fairhurst Co., Inc., John T 264 A-LC Farley & Loctacher Mfg. Co. 2nd Cover
A Fiske Architectural Metals, Inc., J. W
A-IC Flexicore Co., Inc 78
A-IC-LC General Electric Company 218-219 A-LC Geneva Modern Kitchens 36 A Georgia Granite Company 177 Georgia Marble Co 33-84 A Global Steel Products Corp 258 A-LC Goodrich Chemical Co B. F 200 A-IC Granco Steel Products Co 230-231 Guth Company, The Edwin F. 180
Hager & Sons Hinge Mfg. Co.,
C. 94-95 A Haughton Elevator Company 194 A Haws Drinking Faucet Co. 48 A Hexcel Products, Inc. 243 A Hillyard Chemical Co. 76 A Hobart Manufacturing Company 233 A-LC Homasote Company 96 A Horton Automatics, Inc. 88 A Huntington Laboratories, Inc. 224
A-IC-LC Inland Steel Products Co 54-55 International Nickel Company, Inc
A Jamison Cold Storage Door Co 56 A-IC Johns-Manville . 50-51, 86-87, 174-175 Jones & Laughlin Steel Corp. 238-239 Jones Metal Products Company, The
A-LC Kentile, Inc
A LCN Closers, Inc
Leviton Manufacturing Co 71
A Linen Supply Association of
America
A-IC Macomber, Inc 191
Major Equipment Company 248
McGraw-Hill Book Co., Inc 224
A Medart Products, Inc. 203 A-IC-LC Mississippi Glass Co. 222-223 Modern Hospital 260 A Messic Tile Company 181139
Monsanto Chemical Co., Plastics Div
A-IC Montgomery Elevator Co. 70
A-LC Mueller Brass Co 45

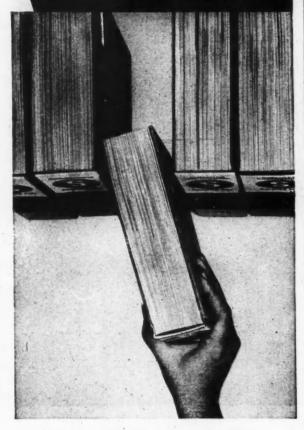
IC	National Lumber Manufacturers Association 284-235 National Terrarso & Mosaic 202 National Tube Div. 166-167 Northrop Architectural Systems 249 Neo-Ray Products, Inc. 8 Nesbitt, Inc., John J. 28
Α.	Olin Mathieson Chemical Corp.,
	Metals Div 25
A	Olin Mathieson Chemical Corp., Winchester Western Div., Ramset 1 Otis Elevator Co
A-IC A-IC-LC	Pittsburgh Corning Corp 246-247 Pittsburgh Plate Glass Co 214-215 Portland Cement Association
A	90-91, 173 Pratt & Lambert, Inc 194
A-LC	Pratt & Lambert, Inc. 194 Precision Parts Corp. 271 Prestressed Concrete Institute 2-8
	Rauland-Borg Corporation 232
A-IC-LC	Revere Copper & Brass Corp., Inc 225
A	Revere Copper & Brass Corp., Inc. 225 Rohm & Haas Company 237 Russell & Erwin Div. 3rd Cover Rud Mfg. Co., Div. of Rheem
A	Ruud Mfg. Co., Div. of Rheem Mfg. Co
A-IC	Mfg. Co
A-IC	Sargent & Greenleaf, Inc
A-IC	Southern Pine 57 Square D Company 192-193 Standard Conveyor Company 67
. A	Stark Ceramics, Inc. 207 St. Charles Mfg. Co. 244 Structural Clay Products Inst. 199 Suburban Appliance Company 272 Sunbeam Lighting Co. 261 Sunbeam Lighting Co. 261
A	Suburban Appliance Company . 272 Suppeam Lighting Co
A	Sweet's Catalog Service 228, 271 Sylvania Lighting Products . 158-159
	Tang Alley
A-IC-LC	Union Bag-Camp Paper Corp., Honeycomb Sales Division 232 United States Gypsum 256-257 United States Steel Corp. (Subs)
A	Universal Atlas Cement 78
A-LC	Uvalde Rock Asphalt Co 85
A-IC	Van Range Co., John 198
A	Van Range Co., John 198 Vogt Machine Company, Henry 194 "Von Duprin Division" 187, 258
	W Post-st-
A	Wasco Products, Inc. 160 Waterloo Register Co., Inc. 189 Weil-McLain Co., Inc. 229 Weis Mfg. Co., Inc., Henry 72 Westinghouse Electric Corn 184/185

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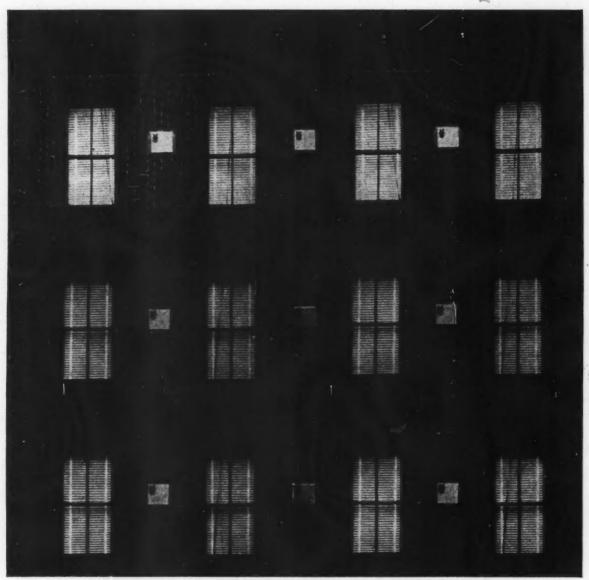
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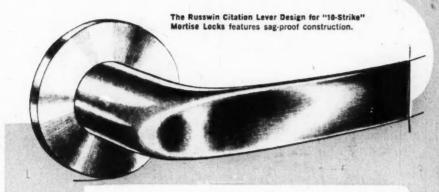
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